Life Cycle Management page 2

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Supporting the First Stryker Brigade in Iraq

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Cover: Operation Iraqi Freedom has provided the Army's first Stryker brigade combat team—the 3d Brigade, 2d Infantry Division—with an opportunity to test its capabilities in actual combat conditions. The articles beginning on pages 4, 17, and 20 describe some of the challenges that faced the 296th Brigade Support Battalion in supporting the brigade's warfighters. The cover photo shows soldiers of the brigade's B Troop, 1st Battalion, 14th Cavalry Regiment, near a Stryker vehicle providing security during an operation in Mosul, Iraq.

This medium is approved for the official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0430605

World Wide Web address:
http://www.almc.army.mil/alog

ALOG NEWS

AUSA MEETING PROVIDES FORUM FOR LOGISTICS LEADERS

The Army's senior logisticians, speaking at the Association of the United States Army (AUSA) annual meeting in Washington in October, emphasized the need for developing an expeditionary logistics force that can operate across the joint and combined environment that increasingly characterizes warfare.

The Army's Deputy Chief of Staff, G–4, Lieutenant General C.V. Christianson, used an analogy comparing buses to taxis to illustrate where Army logistics must go. Buses use a structured approach to serving customers, following fixed routes with fixed stops, while taxis are more flexible and responsive, having no fixed routes or schedules but moving where and when their customers request. According to General Christianson, "We need both." The Army needs to have the capabilities to provide support depending on the demands of the operational environment and customer requirements, he said.

General Christianson noted that there must a single entity responsible for joint theater logistics that can synchronize and integrate all capabilities; responsive support that meets commanders' needs; agile sustainment that adapts to rapidly changing environments; and joint interdependencies that leave no gaps in capabilities but instead create only planned overlaps.

Major General Ann E. Dunwoody, the Commanding General of the Army Combined Arms Support Command, described how Army combat service support training is changing from an emphasis on the technical expertise of soldiers to an expanded emphasis on their tactical skills and how Army organization is changing from layered and heavy to expeditionary and modular structures.

Major Robert T. Dail, the Director of Operations, J–3, of the U.S. Transportation Command (TRANSCOM), reviewed recent initiatives undertaken by TRANSCOM in its role as the Department of Defense (DOD) Distribution Process Owner. These initiatives include continuing to build TRANSCOM as the single distribution process owner, codifying joint logistics processes, consolidating global container management under the Military Surface Deployment and Distribution Command, developing TRANSCOM as the portfolio manager for DOD supply-chain information technology systems (see related story on page 43), and integrating operations and logistics (both processes and systems). The goal is to create a force and sustainment mover (the Distribution Process Owner) that connects capability providers to the warfighter.

Representing the other major DOD-level logistics organization, the Defense Logistics Agency (DLA), Vice Admiral Keith W. Lippert, its director, said DLA is concentrating its efforts on reducing customer wait time (CWT) to support the warfighter and transforming its business processes through its Business Systems Modernization program. Reducing CWT involves such initiatives as forward stock positioning, establishment of the Deployment and Distribution Operations Center (DDOC) in the U.S. Central Command, and studying the creation of an afloat distribution center and a scalable, deployable Defense distribution depot capability.

Brigadier General David A. Fastabend, the Director of Concept Development and Experimentation at the Army Training and Doctrine Command's (TRADOC's) Futures Center, talked about the importance of developing joint interdependencies. These interdependencies include joint command and control; joint fires and effects; joint force projection, with the Army being the most dependent of the services on joint force projection capabilities; joint air and missile defense; and joint sustainment, which is closely related to force projection since the services share the same lines of communication.

General Kevin P. Byrnes, the Commanding General of TRADOC, summarized the significance of the transformation to an expeditionary force and reiterated the need for adaptability. "Expeditionary" does not mean only speed in deploying and providing support, he observed, but also the ability to adapt to changing environments.

MORE UP-ARMORED VEHICLES HEADED FOR IRAQ

Nearly 5,100 up-armored high-mobility, multipurpose, wheeled vehicles (HMMWVs) have been delivered to Army and Marine Corps units in Iraq, and another 724 are on ships en route to the theater. The vehicles will provide increased protection against grenades, improvised explosive devices, and small-arms fire.

(ALOG NEWS continued on page 43)

Life Cycle Management: Integrating Acquisition and Sustainment

by Lieutenant Colonel James O. Winbush, Jr., Christopher S. Rinaldi, and Antonia R. Giardina

Since it formally created an Acquisition Corps, the Army has continually strived to improve the process of developing, procuring, and sustaining its weapon systems. Because sustainment costs account for the largest portion of total life cycle costs for weapons, they remain one of the focus areas for acquisition reform. Army policy designates program managers (PMs) as responsible and accountable for all life cycle phases, including sustainment. However, holding PMs accountable for sustainment continues to be particularly challenging because planning, programming, budgeting, and execution of sustainment funding largely reside in the Army Materiel Command (AMC), not with PMs.

In an effort to improve total life cycle management, the Army has undertaken an initiative to bring the acquisition, logistics, and technology communities closer together. A memorandum of agreement, signed on 2 August 2004, between the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, The Honorable Claude M. Bolton, Jr., and the Commanding General of AMC at that time, General Paul J. Kern, formally launched a plan for the two organizations to work together to establish life cycle management commands (LCMCs). The Chief of Staff of the Army, General Peter J. Schoomaker, approved the initiative on 16 August.

The LCMC initiative is designed to help achieve the Army's overarching goal of transforming into a more lethal and agile force that requires a significantly smaller logistics footprint to sustain itself. Logisticians in the field need to know about the LCMC initiative because it will integrate sustainment concerns with the development and acquisition of materiel. The result of the LCMC initiative will be a seamless materiel continuum from factory to foxhole, with a leaner but more effective and responsive logistics system. The dividing line between acquisition and sustainment is ending, and logisticians will become part of an Army that manages materiel and support from an integrated life cycle perspective.

Background

In October 2001, the Army initiated an action to move all project and product managers and their associated acquisition programs out of materiel development commands and into existing, restructured or newly created PEO organizations. This action abolished the Deputies for System Acquisition in three AMC major subordinate commands (the Army Aviation and Missile Command, Army Tank-automotive and Armaments Command, and Army Communications-Electronics Command) and realigned their functions to the PEOs.

This restructuring created a single, streamlined chain of command for acquisition functions. It also made PMs fully responsible for life cycle management of their assigned programs. However, the realignment did not transfer the funding, personnel, or other resources needed to carry out sustainment functions.

AMC furthered the Army initiative in October 2002 by creating the Army Research, Development, and Engineering Command (RDECOM). This command consolidated the research, development, and engineering elements of all AMC major subordinate commands into one organization. The consolidation of the separate elements under one command structure fosters synergy among them and provides better support to the Army's PEOs. RDECOM is now the center of gravity for integrating, maturing, and demonstrating all emerging technologies for Army acquisition programs, which significantly decreases the time it takes to get these critical capabilities from the laboratory to the soldier. The RDECOM commander has the centralized control to "weight the main effort" for technology development to assist the PEOs in getting the right capabilities to the field at the right time.

Establishing Life Cycle Management

The realignment of the PMs and creation of RDECOM established direct command and support relationships for developing and integrating technologies for Army acquisition programs. However, these changes continued to foster a separation of sustainment from other acquisition functions. In effect, the changes created three "stovepiped" communities—technology development, acquisition, and sustainment—and did not provide the sustainment community with a direct link to the technology development or acquisition communities. Decisions made early in a system's life cycle disproportionately emphasize the acquisition of materiel capabilities, resulting in insufficient focus on operations, training, and support. Inadequate sustainment of

fielded systems undermines the readiness and warfighting capability of the Army. The restructuring also did not provide the formal, high-level organizational relationships necessary to fully optimize the acquisition and sustainment missions.

The Army's key leaders for the acquisition, logistics, and technology communities (Assistant Secretary Bolton, General Kern, and Lieutenant General Joseph L. Yakovac, the Military Deputy to Secretary Bolton) recognized the need to bring these efforts together in an environment that fosters stronger unity of command and unity of effort. This effort begins at the top with "dual-hat" empowering of general officers and Senior Executive Service civilians to integrate the separate technology development, acquisition, and sustainment efforts. Upon Senate confirmation, General Yakovac, already serving as the Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology, also will become the AMC Deputy Commanding General for Acquisition and Technology. AMC's current Deputy Commanding General, Lieutenant General Richard A. Hack, will become the Deputy Commanding General for Operations and Readiness. These changes emphasize the leadership's commitment to making this effort a complete success.

The memorandum of agreement is the first phase in this process. In broad terms, the communities agree that the Army must put together the best and most talented teams they can to support the soldiers serving the Nation around the globe. By adopting a one Army-one team mentality, the Army is taking a holistic approach to managing systems and is capitalizing on the wealth of knowledge from all the communities to find the right solutions for the tough acquisition and sustainment issues that impact Army Transformation.

The initiative also promotes true life cycle management for products and systems, which means that the entire community looks at how to shorten the acquisition process in order to rapidly type-classify and field equipment to soldiers. Perhaps most importantly, the initiative forces consideration of operating and support costs, which typically can be 80 percent of life cycle costs, up front and early in the acquisition process as a part of the "Cost as an Independent Variable" objectives found in the Defense Acquisition Guidebook.

Although the details of how each organization will look are being worked out, the agreement realigns the Aviation and Missile Command, Communications-Electronics Command, Joint Munitions Command, and Tank-automotive and Armaments Command with the PEOs with whom they now work and creates four LCMCs: Aviation/Missile, Soldier/Ground Systems, Communications/Electronics, and Joint Munitions. The PEOs for Simulation, Training, and Instrumentation; Air, Space, and Missile Defense; and Enterprise Information Systems and the Joint PEO for Chemical and Biological Defense are not affected initially. RDECOM retains its technology mission and remains strategically and operationally linked to the new commands. While the reporting chain for PMs and PEOs remains unchanged for acquisition decisions relating to the authority of the Army Acquisition Executive (Secretary Bolton), the LCMC commander is the focal point and primary agent for actions across the entire life cycle of the systems assigned to that LCMC. In some cases, LCMC commanders may be dual hatted as PEOs.

Under the initiative, each new LCMC will develop specific implementation plans outlining support relationships, processes, and internal reporting chains by February. While each LCMC will have some common organizational characteristics, guiding principles, and terms of reference, the Army's logistics leaders are giving the LCMCs maximum flexibility to organize for efficient and effective support of the soldiers in the field who use their products. A Board of Directors, consisting of the Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology/AMC Deputy Commanding General for Acquisition and Technology, the AMC Deputy Commanding General for Operations and Readiness, and the AMC G–3, will provide reports on implementation progress to the Army Acquisition Executive and the AMC Commanding General on a regular basis.

The end state of the LCMC initiative will provide the Army with the ability to reduce the acquisition cycle time, make good products even better, minimize life cycle costs, and enhance the synergy and effectiveness of the Army's acquisition, logistics, and technology communities. **ALOG**

Lieutenant Colonel James O. Winbush, Jr., is Special Assistant to the Commanding General of the Army Materiel Command. He has B.S. and M.S. degrees in engineering from Old Dominion University. He is level II certified in program management and is a member of the Army Acquisition Corps.

Christopher S. Rinaldi is the Chief of the Life Cycle Management Division, Army Materiel Command G–3. He has a B.S. degree in mechanical engineering from Manhattan College and an M.S. degree in mechanical engineering from Rensselaer Polytechnic Institute and is a registered Professional Engineer. He is a member of the Army Acquisition Corps and is level III certified in systems planning, research, development, and engineering.

Antonia R. Giardina is a systems analyst in the Life Cycle Management Division, Army Materiel Command G–3. She has a B.A. degree in environmental biology from Colgate University.

Combat Health Support in the Army's First Stryker Brigade

BY MAJOR SCOT A. DOBOSZENSKI

Logistics doctrine is taught as a rigid standard—the right way to conduct support operations—during field exercises, training center rotations, and real-world missions. I concede that doctrine is a good starting point for training, but I believe that the Army must be flexible to win today's Global War on Terrorism. Further, I believe that, on the battlefield, nondoctrinal methods are often key to maintaining flexibility.

Lessons learned during Operation Iraqi Freedom (OIF) have shown that the current battlefield is nonlinear, the enemy is unconventional, and the battlespace is nondoctrinal. As we modify our tactics to combat the enemy, the enemy likewise changes his approach, rendering massive conventional campaigns ineffective. The reason is simple: No force can match the U.S. military head-to-head in conventional warfare.

Because of OIF experience, an evolution from current doctrine is occurring in combat health support (CHS). While being mindful that some tenets of support must not change, those of us who provide CHS often have to resort to innovative methods in order to provide quality, far-forward medical care. No unit has illustrated this concept better than the Brigade Support Medical Company (BSMC) of the 296th Brigade Support Battalion (BSB), 3d Brigade, 2d Infantry Division (3–2 BCT), or "Arrowhead Brigade," from Fort Lewis, Washington, in support of OIF from November 2003 to November 2004.

BSMC Assets

At first glance, the 296th BSB's BSMC looked much like a forward support medical company and had the same capabilities: level II medical care; emergency dental, limited x-ray, and laboratory services; evacuation and support elements; and a few medical operating systems that focus treatment far forward to

soldiers in the brigade sector. The unique assets of the BSMC were the Medical Logistics, Mental Health, and Preventive Medicine (PVNTMED) Sections and two personnel not typically seen in a medical unit below corps level—a medical-surgical nurse, who was the officer in charge of the Patient Holding Section, and a physical therapist (not yet on the 3–2 BCT's modification table of organization and equipment).

Split-Based Operations

Flexibility was essential during the BSMC's OIF deployment. Unlike what is taught during training rotations to the National Training Center at Fort Irwin, California, and the Joint Readiness Training Center at Fort Polk, Louisiana, the BSMC healthcare providers (physicians and physician assistants) in Iraq augmented battalion aid stations (BASs) for extended periods of time.

Split-based operations were common throughout the BSMC, greatly facilitating the company's area support mission. For most of the deployment, the company was spread over six different forward operating bases (FOBs). While only one FOB had a complete level II capability, another FOB, with area support augmentation from corps-level units, maintained a level II capability minus laboratory and x-ray functions. By adding more lightweight field laboratory and field x-ray medical equipment, a level II care capability was established later in a split-based scenario without increasing the number of authorized personnel. Ultimately, this meant that level II care (minus dental) could be provided in two locations with a minimal increase in the logistics footprint.

To conduct split-based operations, the BSMC's five healthcare providers were divided according to the company's area support mission, risk, number of traumas, and proximity to a combat support hospital (CSH).

Medics load two casualties from a Stryker vehicle accident onto a UH–60 Black Hawk helicopter for evacuation to the 67th Combat Support Hospital in Tikrit, Iraq.

At Outpost Bridges (named for a 3–2 BCT soldier killed in action) in Samarra, Iraq, an ambulance is loaded with medical supplies and equipment.

This departure from the traditional, centrally located level II care meant a heavy reliance on CSH support. For example, soldiers requiring nonemergency diagnostic studies for moderate trauma or potentially serious illnesses routinely were sent to a CSH for laboratory or x-ray services. Soldiers needing 24 to 72 hours of observation or intravenous antibiotics had to tolerate interrupted bed rest and frequent trips to the closest BAS.

One of the most significant decisions that had to be made was where and how to locate the level II medical facility in the mature theater. The primary mission of a BSMC is to provide immediate lifesaving care to stabilize casualties for transport. In planning the CHS battlefield layout, this mission is paramount. Also to be considered are demands for area support and augmentation, which are determined by looking at areas that have little to no coverage and on the population of each area. In other words, coverage is based on trauma first and sick call second.

Mental Health Section

The Mental Health Section, which was staffed by a behavioral science officer (a captain) and a mental health specialist (a specialist), was responsible for the well-being of over 5,000 soldiers in 13 different locations. To cover this large population, the 785th Medical Company (Combat Stress Control) provided augmentation in the form of four mental health specialists (two sergeants and two specialists) and a behavioral science officer (a captain). The support concept focused on far-forward care at various locations to expedite treatment and minimize both lost time and evacuation of soldiers to the rear of the brigade sector and out of theater. This battlefield coverage closely resembled the doctrinal allocation of one licensed behavioral healthcare provider for the first 2,500 soldiers, one additional provider for every 2,000 soldiers, and one mental health technician for every 1,000 soldiers.

Preventive Medicine Section

The Preventive Medicine (PVNTMED) Section was staffed by two personnel—an environmental science officer (a first lieutenant) and a preventive medicine specialist (a specialist). The mission of the PVNTMED Section was to conduct environmental health surveillance, inspection, and consultation services for the brigade. In other words, its mission was to protect soldiers proactively from disease, illness, and sickness caused by poor sanitation, bugs, animals, and other organisms.

During the first 5 months in Iraq, the PVNTMED Section supported 13 different locations, including logistics support areas, FOBs, camps, and ammunition supply points. During the sixth month, the 224th Medical Detachment (PVNTMED) at Fort Hood, Texas, provided two PVNTMED specialists and a team that consisted of a sergeant and a specialist. The team was split—the sergeant was positioned at an FOB with five outlying sites, and the specialist was responsible for an FOB with two outlying sites.

The remaining three FOBs and two outlying sites remained the responsibility of the BSMC's PVNTMED Section. Monthly quality assurance inspections and assessments were made of dining facilities, water-production sites, ice plants, detention cells, barbershops, and base camps. The PVNTMED Section also assisted with soldier education and awareness through classes, information boards, and fragmentary orders that kept soldiers informed about mission changes.

Patient Holding Section

A medical-surgical nurse (a captain) was responsible for the operation of the 40-bed Patient Holding Section. There, casualties expected to return to duty within 72 hours were cared for and monitored. The medical-surgical nurse was responsible for the training of four trauma specialists (military occupational specialty 91W), two of whom were sergeants, one a specialist, and one a private first class. In addition, the medical-surgical nurse coordinated and supported the certification and testing of fundamental 91W competencies, such as the

semiannual combat medic skills verification and cardiopulmonary resuscitation training.

During the BSMC's deployment, the medical-surgical nurse was extremely beneficial, especially during hospital assessments and monthly regional meetings and in coordinating and resolving medical issues. For future deployments, the brigade surgeon, the BSMC commander, and the medical-surgical nurse concur in the need for an additional Nurse Corps officer authorization for a brigade nurse in the Brigade Surgeon Section. That nurse would be responsible for medical trends analysis, patient tracking, outreach programs, limited specialty training, 91W certification tracking, and continuing education of medical personnel. Having both a medical-surgical nurse and a brigade nurse in the brigade would permit the Patient Holding Section to operate successfully while effectively exploiting the skills and experience of a senior, clinically proficient Nurse Corps officer to monitor, track, and enhance the medical capabilities of the 3–2 BCT.

Physical Therapy

The 3–2 BCT deployment to Iraq included the first physical therapist (a major) deployed at the brigade level. During deployment, the therapist traveled to five remote FOBs to evaluate and treat soldiers. As the deployment progressed, the therapist instituted a number of practices that significantly enhanced his efficiency. For example, he carried an aid bag stocked with physical therapy supplies so physical therapy services would be immediately available during convoys or at remote FOBs. Collocating physical therapy services with sick-call services enabled the therapist to provide immediate care to patients with orthopedic complaints and allowed easier consultation between the primary healthcare providers and the physical therapist.

Six months into the deployment, the physical therapist had seen 841 patients and had made 6 trips to remote FOBs to see an additional 85 patients.

Other BSMC Capabilities

The Dental Section of the BSMC supported all organic units, attached Army National Guard and Army Reserve elements, and numerous other personnel during the OIF deployment. The dental clinic provided many services, including oral surgery, endodontics (root canals), operative and esthetic dentistry, annual exams, and dental hygiene. Many improvements have been made in transitioning the dental component into a lighter and more mobile asset. The Dental Section examined and treated over 750 patients and performed more than 1,400 procedures in the first 7 months of the deployment. More than 100 dental cleanings also were provided during this time, which were critical to preventing dental disease while in the theater of operations.

The BSMC's digital x-ray capability made it possible to diagnose fractures and shrapnel wounds accurately and transport the x rays electronically. Over the first 6 months, the digital x-ray system failed only twice, once because of a mechanical problem and once because of a software problem. Both issues accounted for less than 2 weeks of not-mission-capable time, most of which was spent waiting for the parts or software.

The BSMC's clinical analyzer, known by its trade name i-STAT, provided point-of-care blood analysis with minimal wait time for results. In future deployments, an electrical centrifuge, which separates blood components at a speed of 5,200 or more revolutions per minute, would increase the BSMC's blood analysis capability significantly with little or no impact on the company's logistics footprint.

Medical Reporting, Tracking, and Management

To help track care and medical logistics on the battlefield efficiently, several automated systems were fielded to the BSMC during its train-up and certification. Some of these systems were implemented successfully, and others are still works in progress that had significant operational shortfalls.

The Medical Communications for Combat Casualty Care (MC4) system is the hardware that supports automated medical reporting, tracking, and management functions for deployed medical units. This "system of systems" supports complete clinical care documentation, medical supply and equipment, and patient movement and in-transit visibility.

The MC4 system captures medical treatment information in an austere environment through either manual media transfer or a "store and forward" capability. This is accomplished through the interaction

A soldier receives dental care at Forward Operating Base Pacesetter.

of the handheld Battlefield Medical Information System-Tactical (BMIST) data-recording system and the Composite Health Care System II (CHCS II).

Although the BMIST required minimal user training, its performance was limited by the requirement that a user have a legible personal identification card, or PIC. The PIC is designed to hold a soldier's personal data and complete medical record and is intended to be worn with his identification tags. However, factors such as heat, perspiration, and constant impact often rendered the cards unreadable. Therefore, all information had to be entered into the handheld device manually. This factor alone made the system unwieldy to use. A field medical card would have been more expeditious.

CHCS II generates and maintains a comprehensive, lifelong computer-based patient record (CPR) for beneficiaries of the military healthcare system. Although this second generation system is more robust than its predecessor, it had some significant shortcomings during deployment to OIF. The most significant failure was its inability to "reach back" and retrieve a soldier's CPR. This prevented the review of medical history that assists in more responsive care and diagnosis.

Another notable CHCS II deficiency was the lack of a theater or brigade data repository. If a soldier changed locations, the only way he could maintain his in-theater medical history was by taking a hard copy with him. Healthcare providers could not access any other unit's database unless directly connected. In addition, the system did not provide reliable documentation required for redeployment.

The Theater Army Medical Management Information System (TAMMIS) Customer Assistance Module (TCAM) is a Windows-based medical logistics ordering and inventory tool used to order medical supplies; review catalogs; and check order status, on-hand balances, and available substitutes that are used by medical units. Designed with flexibility in mind, TCAM is customer-friendly, automated ordering software that has minimal systems requirements and can be used with very little training. However, in a deployed environment, its use is, in most cases, limited to ordering because of poor or unreliable connectivity. As the theater develops, connectivity should improve and other functions of the TCAM should be more readily available.

For forward units, one of the most critical capabilities is determining order status. For a unit to order the correct quantity of items needed for a specific period of time, it must know the anticipated customer wait time. This allows accurate forecasting without over ordering, which results in retrograding excess items or "dumping" them on the battlefield as the operation progresses. More importantly, the ordering function of TCAM notifies the unit that the items it requested have been shipped and will require pickup, which helps to ensure that the unit gets the supplies it ordered on time.

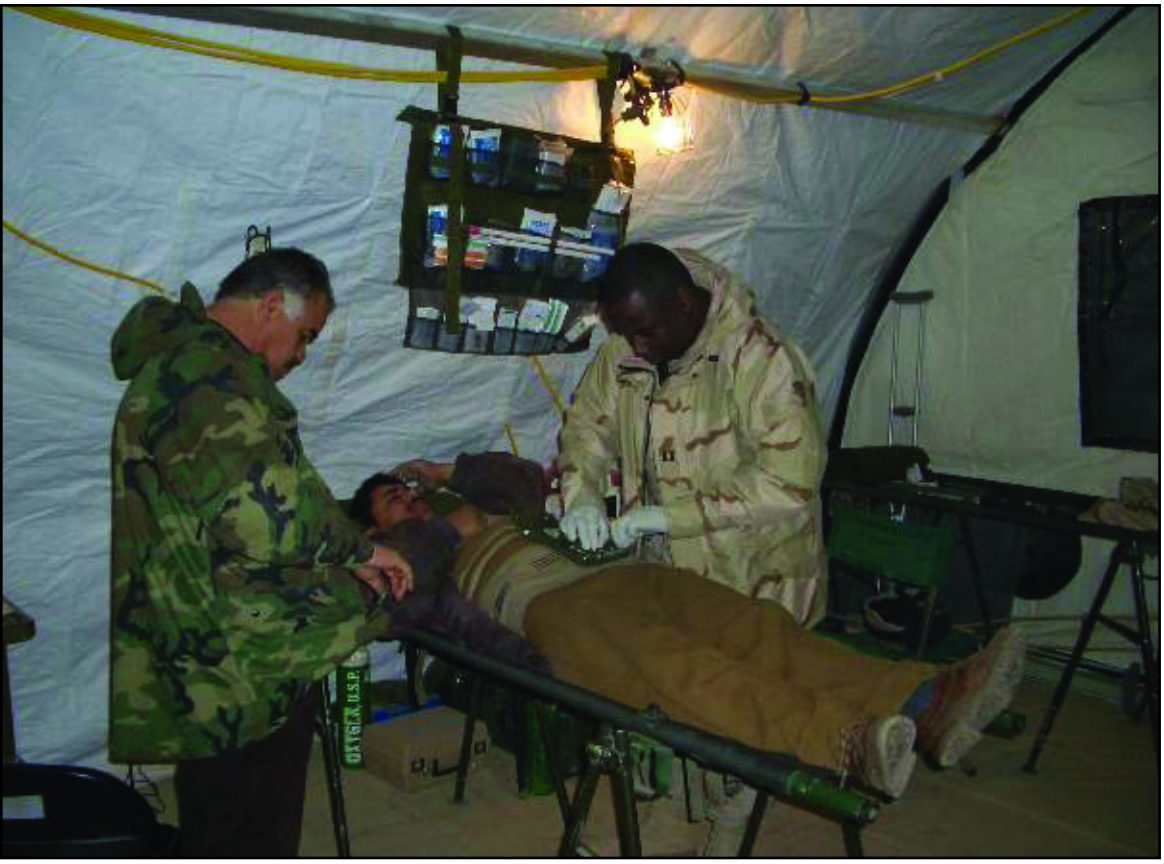
The Defense Medical Logistics Standard Support Assemblage Management (DMLSS–AM) system is a medical set management tool that assists the user in creating, ordering, and tracking shortages by set. Although intensive training is needed to use it, DMLSS–AM is a very powerful program that has great potential. Based on feedback from the noncommissioned officer who was in charge of the 3–2 BCT's Medical Supply Office, some improvements are being made to the program. These improvements include incorporating cataloging and automatic substitution functions, which will assist in forecasting stock listings at the supply support activity (SSA). Customers will be given a limited list of alternates when their first choice is not available or suitable. Because the SSA is more likely to have items in stock and can ship more quickly, customers will be more satisfied.

Evacuation Operations

During operations in and around Samarra, Iraq, the 3–2 BCT was located on the Samarra East Airfield at FOB Pacesetter. Initially, with medical facilities in such close proximity, the maneuver battalions conducted operations in Ad Duluiyah, just outside of the FOB, using their organic Stryker medical evacuation vehicles (MEVs) as the primary means of evacuation from point of injury back to the BSMC.

As operations progressed, the maneuver battalions moved to the outskirts of the city to initiate Operation Ivy Blizzard with forces from Fort Hood's 4th Infantry Division (Mechanized). The BSMC remained at FOB Pacesetter while level I assets, augmented with two evacuation platforms, moved with their battalions. When the BSMC was required to evacuate from the BAS, the maneuver units provided security. The primary means of evacuation from level II care to level III was by UH–60 Black Hawk MEDEVAC (medical evacuation) helicopters.

As the threat of attacks with improvised explosive devices (IEDs), small arms fire, grenades, and rocket-propelled grenades increased, so did evacuation support. The greatest change in evacuation procedures was the prohibition of "soft-skin" vehicles on the main supply routes. A "soft-skin" vehicle is one that does not have sufficient armor to protect the driver and passengers during attacks. Consequently, the primary means of evacuation was by air, and on-the-ground MEV evacuation was the alternate means. The front-line ambulances were used only for patient evacuations at the FOB. With few exceptions, evacuations from the BAS directly to the BSMC were by MEV or MEDEVAC helicopter. As the battlefield transformed



A Brigade Support Medical Company medic (right) prepares to stitch a laceration on the head of an Iraqi soldier. At left is a contracted translator.

into a battlespace, the dependence on UH–60 helicopters for casualty evacuation increased because of the long distances involved, the speed required, and the need to protect soldiers and assets.

The doctrine used to prepare and certify the Army's first Stryker Brigade for its deployment to OIF was tested and modified to meet the evolving tactics and techniques of its enemies. The continuing evolution requires change and flexibility, not only within the standing operating procedures of the combat arms, but also of combat service support and CHS.

As the Iraqi people struggle to restructure their country and effectively exercise their sovereignty amid constant threats from insurgents, the transformation of the battlefield requires a flexible, agile CHS system to support every soldier and civilian.

Throughout a year of deployment, the 3–2 BCT medical community met the challenges of a nonlinear battlefield and provided superior care to the casualties inflicted by an unconventional enemy. Although the flexibility required stretched the medical support system to its limit, coordination among medical assets accomplished the mission and provided the best care possible to soldiers despite such limiting factors as time and distance to the next level of care, obsolete evacuation platforms, and greatly dispersed providers.

Physical therapy and mental health assets unique to the brigade, along with the traditional medical assets, minimized the time soldiers requiring care spent away from their units. The PVNTMED Section ensured that the entire force stayed "fit to fight" by monitoring food and water sources and mitigating the threat of disease.

Although the deployment was not without trauma and critical injury to soldiers from hostile fire and accidents, the superior medical training that the 3–2 BCT healthcare providers received before deployment, their ability to maintain a 95-percent equipment operational readiness rate, the timely distribution of medical materiel, and the flexibility of both treatment and evacuation contributed to exceptional care and the best possible chance of survival for the brigade's soldiers. **ALOG**

Major Scot A. Doboszenski is the Commander of the Brigade Support Medical Company, 296th Brigade Support Battalion, 3d Brigade Combat Team (the Army's first Stryker Brigade), 2d Infantry Division, at Fort Lewis, Washington. He has a master's degree in psychology from Saint John's University in Minnesota and a master's degree in management of information systems and sciences from Bowie State University in Maryland. He is a graduate of the Army Medical Department Officer Basic Course, the Medical Logistics Management Course, the Combined Logistics Officers Advanced Course, and the U.S. Army Medical Materiel Agency Medical Logistics Management Intern Program.

Sustainment Command and Casualty Capacity

BY COLONEL DAVID L. NOLAN, USA (RET.)

Recently I had the pleasure of serving as an assessor at a war game. The war game scenario included a joint sustainment command that was part of a joint task force. In preparing for my assessor duties, I reread Colonel Larry D. Harman's commentary, "Asymmetric Sustainment: The Army's Future," in the July–August 2003 issue of *Army Logistician.* His article offered intriguing insights into the future of sustainment.

Both the war game I observed and Colonel Harman's commentary addressed the complex challenges of commodity and distribution management in an environment of elevated customer expectations. As an Army alumnus, I found it intellectually rewarding to again engage in the challenges confronting the Army, the sustainment community, and logisticians.

Defining Sustainment

Since leaving active duty, I have been involved in information architecture, a field that requires a well-defined integrated data dictionary. Such a dictionary defines meanings and classifies hierarchical relationships among words to reduce confusion and enhance the clarity of the context of words. As the Army continues to march into the Information Age, logisticians must define words clearly, being careful to address their full context.

Take the word "sustainment," for example. Joint Publication 1–02, DOD [Department of Defense] Dictionary of Military and Associated Terms, defines sustainment as "the provision of personnel, logistic, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective." To understand this definition fully, the reader must look for precise meanings of three words it contains: "personnel," "logistic," and "other support." Joint Publication 1–02 defines personnel and logistics but fails to offer a definition of "other support." If a joint sustainment command is to encompass the full breadth of sustainment, logisticians must address all aspects of sustainment with equal enthusiasm and knowledge.

Healthcare

One important aspect of "other support" is healthcare. Military personnel are exposed to a variety of health threats that are mitigated through prevention, detection, and protection. In the last decade, improvements in healthcare and in detecting and protecting against health threats have significantly reduced disease and nonbattle injury (DNBI) rates in theater. In fact, DNBI rates are lower in theater than at home stations. Again, healthcare is an area in which definitions are important.

Look at the word "casualty," for example. Joint Publication 1–02 defines casualty as "any person lost to the organization by having been declared dead, duty whereabouts unknown, missing, ill, or injured." Thus, only those DNBI and battle injury (BI) personnel lost to the organization are casualties. By definition, a person who is treated and immediately returned to duty is not a casualty. However, a significant part of the medical workload is devoted to personnel who are returned quickly to duty and thus are not a loss to their unit. Therefore, it is important to consider the return-to-duty medical workload when determining casualty capacity.

Casualty Capacity Versus Casualty Estimation

Determining the medical system's casualty capacity is a complex calculus of interacting variables. Some variables are the population at risk, length of time a soldier is held in theater before he is returned to duty in his unit (evacuation policy), post-operative length of stay before a patient is stable enough to evacuate to the next level of care (evacuation delay), conditions necessary for a patient to skip the next level of care without a medical intervention (skip factor), and estimated medical workload in numbers of patients and range of DNBI and BI. It is when determining the medical workload that estimating the medical system's casualty capacity intersects with casualty estimation.

Major David R. Gibson's article, "Casualty Estimation in Modern Warfare," in the November–December 2003 issue of *Army Logistician*, addresses several salient points on estimating casualties. An additional point to consider is that opposing force casualties may become friendly force prisoners of war requiring medical attention. However, these prisoners of war are not included in the friendly force casualty-estimation process. Likewise, displaced civilians and civilian casualties usually are not considered in casualty estimates.

Opposing force casualties may become friendly force prisoners of war requiring medical attention. Above, an injured insurgent is treated at the 31st Combat Support Hospital in Baghdad, Iraq.

Although Major Gibson's article is on friendly force casualty estimation, his opening comments highlight the dilemma that occurs when deploying medical capacity to manage an estimated casualty load. His sources reported a medical capacity of 13,000 beds positioned in 44 in-theater hospitals at the beginning of Operation Desert Storm to manage the estimated number of friendly casualties. Today, even if there were a similar friendly casualty estimate, the deployed medical capacity would be reduced because of changes in the population at risk, evacuation policy, evacuation delay, and skip factor.

Excess or Idle?

When preparing for a conflict, it is important to focus on medical capacity rather than on friendly force casualty estimation only. When focusing on friendly force casualty estimation, it is easy to confuse excess with idle medical capacity. An example of excess capacity is a family of four buying a six-passenger car when it is highly unlikely that six passengers will ever be transported in the car. Idle capacity is one member of the family using the car to run an errand. Capacity is idle during the errand, but not when the whole family goes on vacation.

Casualties are rarely generated evenly and consistently throughout the military forces each day. Pauses between casualty peaks create idle capacity, which gives the medical units the time and resources to refit and resupply. Most war games avoid realistic casualty play, so it is doubtful that meaningful insights can be drawn from correlating a friendly casualty estimate with a casualty outcome. Focusing on a force's medical capacity is a more meaningful indicator for an insightful dialogue with the combat commander. The joint force commander surely would want to know when in-theater casualties exceed the medical capacity to manage them.

If a joint sustainment command is to embrace the full breadth of sustainment, its logisticians must understand and address all aspects of sustainment. By understanding the relationship between sustainment and casualty capacity, logisticians will be better prepared to consider the implication of "other support" required by the Army's most critical resource: its soldiers.

Colonel David L. Nolan, USA (Ret.), is employed by BearingPoint, Inc., in McLean, Virginia, and works in the Office of the Army Surgeon General's Enterprise Architecture Program Management Office as a consultant and project leader. He has a B.A. degree in history from The Citadel and an M.B.A. degree from Western New England College. He is a graduate of the Army War College.

Joint Medical Logistics in Kuwait

BY COLONEL PAUL R. SPARANO

Patients are evacuated by ground to air and by ground (inset).

JMAR, APS, JDF, and JSLIST are just a few of the considerations that concern joint MEDLOG managers in their support of PMTAFs, FSSGs, the EMFP, and ASMCs in the KTO.

If you understand what was just said, then you can start work immediately as an effective medical logistics manager in the Kuwait Theater of Operations (KTO). If you don't understand it all, that's OK, you can be trained.

What was just said—"translated"—is that the Joint Medical Asset Repository (JMAR), Army Prepositioned Stocks (APS), the Joint Deployment Formulary (JDF) (pharmaceuticals), and Joint Service Lightweight Integrated Suit Technology (JSLIST) ("MOPP [mission-oriented protective posture] gear," or protective suits) are just a few of the considerations that concern joint medical logistics (MEDLOG) managers in their support of the Army's area support medical companies (ASMCs), the Navy's Expeditionary Medical Facility Portsmouth (EMFP), the Air Force's preventive medicine teams (PMTAFs), and the Marine Corps' force service support groups (FSSGs).

These acronyms demonstrate that the different armed services speak different "languages." They also have different medical organizations and

medical equipment. These differences are deliberate, as each service supports different military missions. However—and this is a crucial point—all of these different medical organizations are working well together to provide required healthcare at high standards in the KTO.

Creating Joint Force Medical Support

In the KTO and in support of Operation Iraqi Freedom (OIF) II, the 8th Medical Brigade (Forward), according to its mission statement, "provides joint command and control of all medical units to provide health service support across the full spectrum of military operations, JRMO [Joint Medical Regulating Office], [and] JRSO&I [joint reception, staging, onward movement, and integration] and to manage Class VIII [medical materiel] in the Kuwait Theater of Operations." The 8th Medical Brigade is an Army Reserve unit headquartered in New York City.

The 8th Medical Brigade's joint medical task force organization includes Army (Active component and activated Army National Guard and Army Reserve), Navy, Air Force, and Marine Corps units. These units are diversified in their service, missions, and home stations. They provide levels I, II, and III healthcare, air ambulance, veterinary, preventive medicine, combat stress control, and medical logistics support. [Level I care includes immediate lifesaving measures and medical evacuation to supported medical treatment elements and includes battalion aid stations. Level II care is performed at the brigade and division levels. Level III care is the first level of care with hospital facilities.]

The 8th Medical Brigade's Logistics Section, according to its mission statement, is tasked "with a sense of urgency and cost reduction, to provide comprehensive medical logistics support to 8th Medical Brigade assigned and attached units in matters of supply, maintenance, transportation, and services."

During the period January to May 2004—the "surge" period of OIF that this article covers—over 250,000 military personnel moved into and out of the Southwest Asia theater, most through the KTO. During this period, the joint medical task force experienced some important successes. Joint medical units were integrated quickly into the task force. "Left seat-right seat rides" (redeploying units turning over responsibilities to deploying units) went well. The high quality of health service support continued unabated, regardless of whether it was provided by Army, Navy, Air Force, or Marine Corps personnel. In some areas, the quality of health service support actually increased. Service members from different units exchanged information, including recommendations for improving health service support. Some service members were able to provide additional training to other unit members, such as combat lifesaver and healthcare specialist training. Some service members with required skills were easily transferred to another service's unit to fill temporary or emerging needs.

In short, all of the medical units deployed to the KTO with a mission, all service members deployed to support that mission, and, most importantly, all the pieces came together nicely to provide quality health service support to all service members in the theater. The joint forces assigned to the 8th Medical Brigade's joint medical task force organization adapted quickly to the Army way of doing medical logistics business, including requisitioning supplies, maintaining equipment, and maintaining health service support in the theater.

However, the 8th Medical Brigade also faced some challenging issues during this period that had to be addressed and resolved quickly. What follows is a "top 10" list of issues faced and lessons learned while the brigade implemented joint medical logistics programs in the KTO from January to May 2004, as well as recommendations for improving future joint medical logistics support.

Increasing TAMMIS Use

Medical units in the KTO did not uniformly use the Theater Army Medical Management Information System (TAMMIS) Customer Assistance Module (TCAM) to requisition medical supplies. Some units used other methods such as email and paper requisitions, which were inefficient, slowed replenishment of medical supplies, and hindered the supply system's ability to stock items based on true demand. Joint units scheduled to deploy and report to the brigade had been trained on the use of TCAM and were expecting to use it, but some of the hardware and software in the theater did not incorporate the latest TCAM configurations. Requisitions were not passed through the 8th Medical Brigade's 6th Medical Logistics Management Center (MLMC), which impeded resupply since an item is not ordered until a requisition has a valid requisition number.

Here are some recommendations for improving use of TAMMIS—

- Direct units to use TCAM.
- Use customer assistance visits (including visits by Department of the Army G–4 and G–6 and Program Executive Office for Enterprise Information Systems contractors) to each unit to examine unit hardware and software, configure them to the latest versions, and provide training as required.
- Route requisitions through the 6th MLMC.

A MEDLOG team in theater would have been very beneficial. This recommendation applies to all 10 issues.

Speeding Theater Distribution

Medical logistics theater distribution was cumbersome and slow. The process was not working as well as it should have. Supplies moved through the U.S. Army Medical Materiel Center Europe (USAMMCE) and the U.S. Army Medical Materiel Center Southwest Asia (USAMMC–SWA) to the aerial port of debarkation, theater distribution center, central receiving and storage point, Camp Doha, Kuwait, supply support activity (SSA), and finally to the unit. Urgently needed medical supplies arrived at their destinations late or not at all. Some supplies just sat until they were picked up.

Recommendations for fixing these problems include the following—

• USAMMC–SWA should email or call customers in advance of shipments.

• Pure pallets should be used for shipping whenever possible. [Pure pallets are loaded with materiel for only one unit.]

• The aerial port of debarkation should call customers when supplies arrive.

• Customers should pick up supplies when notified of their arrival.

• A plan should be implemented to upgrade delivery procedures for class VIII supplies to medical level I and II troop medical clinics and the level III hospital in the KTO.

Providing Class II and III Supplies

Class II (clothing and individual equipment, such as insect nets) and III (petroleum and chemical products, such as the insecticides Permethrin and Deet) support to the population at risk did not go smoothly. Some soldiers did not have what they needed. Supplies of some of these items were stocked in theater in preparation for combat operations, but there were few requests for them. Other items, such as insect nets, were in short supply in the theater. Additional items that all deploying soldiers should have had were JSLIST (they did); 180 days' worth of prescription medicines (most did not); medical biological and chemical defense materiel (they did); and interceptor body armor (most had the outer tactical vest, but few had the small arms protective inserts).

Recommendations for improving class II and III supply include the following—

• Ensure that class II and III items are issued (or on hand) to all service members at their mobilization sites.

• Emphasize to leaders, and advertise in theater, the availability of these items and the need to use them to prevent disease and nonbattle injuries.

• Move supplies forward to deployment camps for distribution to units needing them.

• Have the theater deployment/redeployment coordination cell (DRCC) make these items "items of interest." [Items of interest are items that have the attention of senior leaders and therefore are managed carefully.]

Supporting Units Arriving Without Equipment

Some units arrived in theater weeks ahead of their equipment. Equipment often was not shipped from mobilization sites until units were validated to deploy. Units in the theater without their equipment were not able to perform their missions fully. They also could not complete additional, required in-theater training, such as convoy live-fire exercises.

Recommended solutions for remedying these problems include the following actions—

• Ship unit equipment from the mobilization site to the deployment site earlier in the process.

• Create a "pool" of weapons and equipment in the theater so deploying units can complete any required in-theater training.

• Use stay-behind equipment (equipment left in theater by redeploying units) to the maximum extent possible to alleviate shortages.

Improving Unit Maintenance Capabilities

Some units arriving in theater with their ground equipment did not have organizational or direct support maintenance capabilities, including the Unit Level Logistics System (ULLS)–S4 or ULLS–G (Ground). As a result, these units were not equipped in theater to maintain their ground equipment, which prevented them from fully performing their missions.

Solutions to this problem include—

• At the camp of any unit without organic maintenance capability, assign other units to provide organizational and direct support maintenance and repair parts support to that unit.

• Provide ULLS–S4 or ULLS–G to units at their camps.

• Work with units' higher headquarters to establish the maintenance capabilities they need.

• Consider expanding support to include ULLS and property book items.

Managing DODAACs

Some units deployed without Department of Defense Activity Address Codes (DODAACs), which prevented them from requisitioning supplies and equipment while in the theater. As a fix, some of these units started using the same DODAACs as the redeploying units they were replacing. However, these DODAACs were theater specific. (The redeploying units would use their peacetime unit DODAACs when they returned home.) The result was that two units would be using the same DODAAC temporarily. If no

further action was taken, the DODAAC would be deleted within 60 days after the redeploying unit returned home and the deployed unit would again be without a DODAAC.

Recommendations for improving management of DODAACs include these actions—

• Each service component must ensure that its units have DODAACs before they arrive in theater.

• Units can still get DODAACs in theater by coordinating with their service component (including by email).

• The 8th Medical Brigade's headquarters also can assist in getting DODAACs, including transferring a redeploying unit's DODAAC to the brigade's theater unit identification code.

• "Generic" (not unit specific) DODAACs can be assigned to units and then remain in use in the theater when the units initially receiving those DODAACs redeploy.

Taking Advantage of Stay-Behind Equipment

Several problems affected the use of stay-behind equipment (SBE)—

• Equipment maintenance was lacking in theater because of high operating tempo and insufficient organic maintenance capabilities.

• Equipment shortages were not replenished in a timely manner.

• SBE not in use often was not stored properly in the theater.

• SBE requirements were not thoroughly scrubbed. For example, when joint inventories were conducted with losing and gaining units, some SBE was not required (such as radio sets and chemical detectors).

• Lateral transfers can be done only within the same service, which made it impossible to make such transfers between Army components and the other services.

• Some SBE designed and made for field use was used in fixed facilities.

In spite of these problems, SBE is a good thing and can save time, manpower, and money. Units deploying to the theater can fall in immediately on SBE, eliminating the need to pack, ship, receive, assemble, and prepare for use the same equipment.

Recommended solutions for improving use of SBE include the following—

• Use the medical logistics support team (MLST) and SSA contractor support to augment any required medical equipment maintenance. [An MLST is a slice of a medical logistics battalion or company and typically has 6 to 12 soldiers.] Organizational support and direct support units can be used to augment the required maintenance of any rolling stock equipment.

• Perform a 100-percent inventory and preventive maintenance on all medical equipment sets before bringing them to the theater. Continue to perform inventories and preventive maintenance on all medical equipment in theater, and requisition to fill any shortages. Perform a 100-percent inventory of SBE between losing and gaining units. Requisition shortage list items.

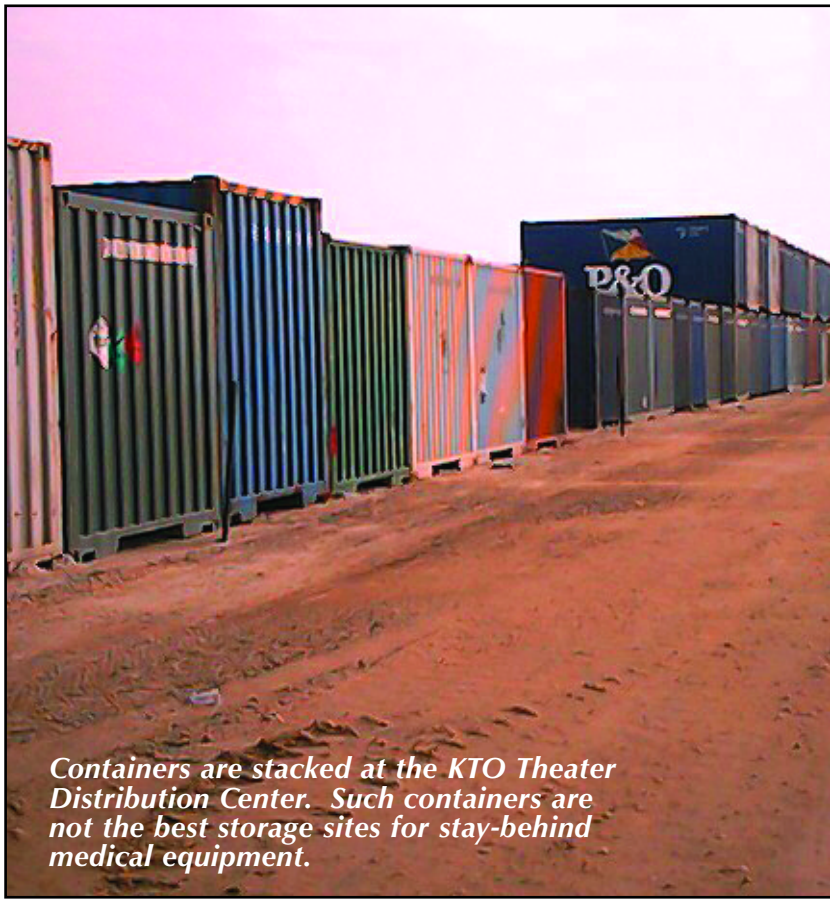
• Store medical SBE not in use in more appropriate storage than military-owned, demountable containers (MILVANs), which can be very hot and humid and thus can contribute to equipment deterioration.

• Continually scrub current and future SBE requirements for additions or deletions. This process should address joint force requirements.

• Have COMPO [component] 1 (active duty), 2 (National Guard), and 3 (Reserve) property book officers manage their respective property books. A similar arrangement should be considered for joint forces SBE.

• Use SBE, including air ambulances and vehicles, as often as possible when there is a match between the mission and the equipment.

• Use SBE as often as possible to standardize medical equipment at troop medical clinics.



Containers are stacked at the KTO Theater Distribution Center. Such containers are not the best storage sites for stay-behind medical equipment.

Handling Hazardous Materials

The turn-in of medical biological and chemical defense materiel (MBCDM) during some units' redeployment was not performed according to established procedures. These controlled substances were found at such places as washracks, dumpsters, and building garbage containers. The KTO had several designated MBCDM turn-in points, which were widely advertised. Despite these turn-in points, MBCDM was found all over the camps and posed a very serious health hazard.

Recommended solutions for better management of MBCDM include—

- Continue DRCC redeployment assistance coordination meetings to disseminate proper turn-in procedures, including who, what, where, when, and how and points of contact.
- Highlight turn-in information on the DRCC Web site.
- Include information on MBCDM in the Commander's Handbook, which is available to all redeploying unit commanders in the theater.
- Include information in redeployment packets, which instruct redeploying units on how to clear the theater.
- Advertise turn-in points and make those points convenient for turning in MBCDM.

Providing Eyeglasses

No organic optical fabrication capabilities existed in the KTO after the redeployment of the 8th Medical Brigade's Medical Logistics Battalion. This made it difficult to issue prescription eyeglasses quickly to service members. USAMMCE had to support the entire theater, supplemented by local commercial contracts—a time-consuming and expensive process.

Here are some possible solutions—

- Task the Medical Logistics Company at U.S. Army Forces Central Command–Qatar (ARCENT–QA) to provide optical fabrication in support of the Combined Joint Task Force (CJTF) in Afghanistan, CJTF–Horn of Africa, and ARCENT–QA.
- Task the Camp Doha troop medical clinic, augmented by optometry personnel from the Navy's Expeditionary Medical Facility Portsmouth, to provide optical fabrication to the KTO.
- Use the Theater Medical Logistics Battalion to provide optical fabrication support in Iraq. This battalion is assigned to the 2d Medical Brigade in Iraq.
- Procure additional Opticast optical lens fabrication systems to support the KTO. This may require additional optical SBE in the U.S. Central Command area of responsibility.
- Plan for sufficient optometrist support.

Managing Pre-positioned Stocks

Several issues affected Army Pre-positioned Stocks (APS)—

- Transfer of some APS equipment between OIF I and OIF II units was not as well coordinated as it should have been. APS were issued to hospital, company, detachment, medical logistics, and maneuver OIF I units. OIF II and subsequent operations required serviceable medical and nonmedical APS.
- APS stocks of critical items were depleted.
- Maintenance of APS equipment needed improvement.
- There were new requirements to support joint forces.
- APS equipment was not always ready. It deteriorates, becomes obsolete, and is lost.

Recommended resolutions to these problems include the following actions—

- Update APS plans and disseminate those plans to all concerned parties.
- Refit, refurbish, and augment APS stocks as required.
- Provide for the maintenance of APS equipment, including using the MLST, and assign maintenance responsibilities in each camp to the units that have organic maintenance capabilities.
- Scrub and prioritize current and future APS requirements.
- Use APS as much as possible whenever there is a match between the mission and APS equipment.

These 10 issues are as diversified as the units in this joint medical task force operating in the KTO. Some of the issues may apply to other, nonmedical units, and some are unique to medical unit logisticians. These issues affected every unit of the joint medical task force in varying degrees. Collectively, and in the spirit of joint services cooperation, these issues were and are being addressed head-on and resolved quickly. In the KTO OIF II medical community, and in the world of medical logistics specifically, joint service units are working together to solve logistics issues and provide effective healthcare support to the theater. **ALOG**

Colonel Paul R. Sparano is the Deputy Chief of Staff for Logistics of the 8th Medical Brigade (Forward) in Southwest Asia. He is a graduate of the Officer Candidate School; the Army Medical Department, Field Artillery, and Finance Officer Basic Courses; the Army Medical Department Officer Advanced Course; the Army Command and General Staff Officer Course; the Joint Course on Logistics at the Army Logistics Management College; and the Advanced Program Management Course at the Defense Systems Management College.

Feeding the Soldiers in Iraq

BY CAPTAIN MICHAEL K. PAVEK

During their deployment to Iraq, the soldiers of the Field Feeding Platoon (FFP) of Headquarters and Headquarters Company (HHC), 296th Brigade Support Battalion (BSB), 3d Brigade, 2d Infantry Division, from Fort Lewis, Washington, supported troops in 12 different locations in northern Iraq. They operated in environments that ranged from austere at Forward Operating Base (FOB) Pacesetter in Samarra to urban in Mosul and Tal Afar. This required them to adapt continually to an ever-changing operating environment and enemy.

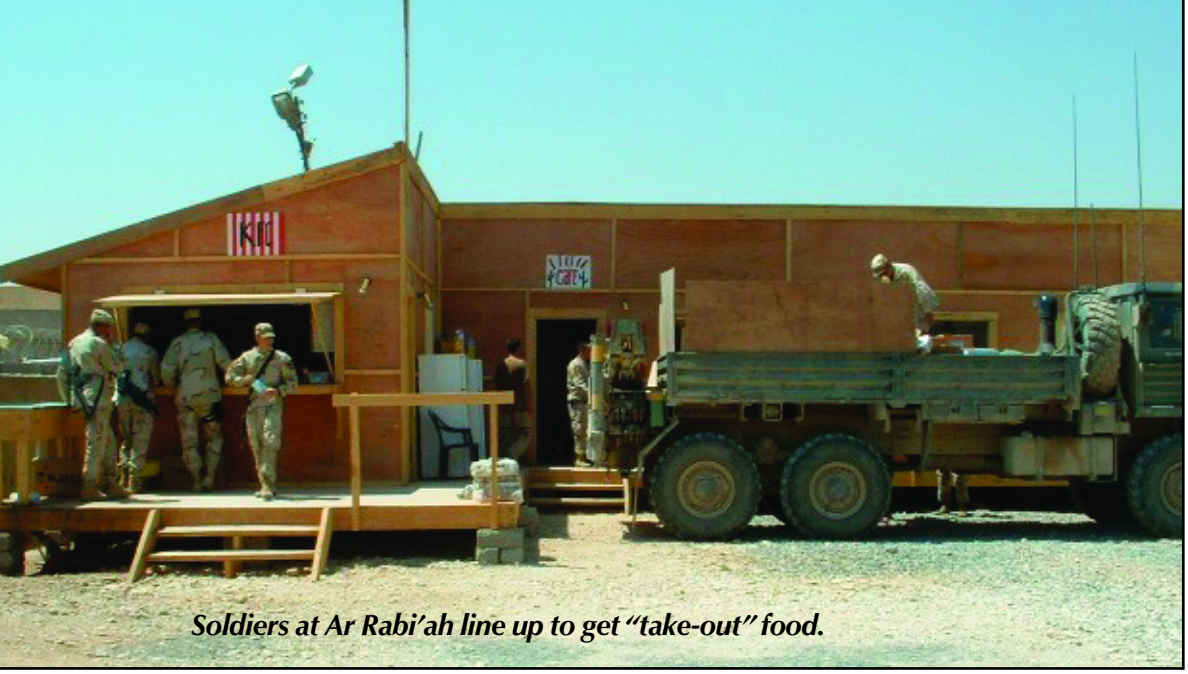
The FFP consists of a platoon leader, a platoon sergeant, and six field feeding teams (FFTs), each of which has a habitual relationship with a battalion in the brigade. The FFTs range in size from 9 to 19 soldiers, and each has an E–7 noncommissioned officer in charge (NCOIC). For the duration of the brigade's deployment, the FFTs were detached from the company and attached to the 296th BSB to simplify movement planning and provide the battalions with greater flexibility.

> The feeding standard is that soldiers will be provided three quality meals daily. When units deploy under combat conditions or in support of contingency plans, they will initially consume the meal, ready-to-eat (MRE). As the theater matures and METT–T allows, soldiers will also consume a variety of group feeding rations. Among these rations are the T- (heat-and-serve), B-, and A-Rations.
>
> —FM 10–1, Quartermaster Principles

FOB Pacesetter

Initially, the brigade occupied FOB Pacesetter near Samarra, which was an austere base with no facilities. Every FFT was used to prepare meals. The BSB

The containerized kitchen at Forward Operating Base Blickenstaff serves 300 soldiers daily.



Soldiers at Ar Rabi'ah line up to get "take-out" food.

consolidated two FFTs to operate one dining facility, and the other teams ran separate dining facilities. Battalions often required separate feeding cycles or times because of their mission requirements.

When the entire brigade was located on site, the BSB FFT had to feed an extremely high headcount. The combined number of BSB soldiers, brigade troops, and transients fed in the BSB regularly exceeded 1,000. To meet this demand, the BSB FFT had to use KCLFF–Es (kitchens, company level, field feeding-enhanced) from other FFTs to supplement its containerized kitchen (CK).

Dining facilities were established in an aircraft hangar and in fest tents. Tables and chairs, which were contracted from Kuwait, did not arrive for several weeks after the facilities had been established. Lighting in the large facilities was insufficient, so a local contractor was used to provide more lights.

FOB Food Service Operations

When the brigade replaced the 101st Airborne Division (Air Assault) in Mosul, it spread out to 11 locations. Four sites were located within the city, two sites south of the city, and five sites near the city of Tal Afar, which was approximately 100 kilometers northwest of Mosul. The FFP provided meals at field sites and contractor-operated dining facilities. Contracted operations were provided by Halliburton Kellogg Brown & Root (KBR).

The 1–37 Field Artillery Battalion and the 296th BSB were located at FOB Marez near the Mosul Airfield. The dining facility there was run by KBR. The FFTs assigned to those battalions, representing the commands on the base, provided quality assurance and control.

The 1–23 Infantry Battalion operated out of FOB Blickenstaff and had one of three operational CK sites. The 1–23's FFT served 300 soldiers daily and maintained a ration cycle of continental breakfasts, cold meat sandwich lunches, and hot dinners. The meals were served in a nearby building that had been transformed into a dining facility.

FOBs Regulars, Freedom, and Fulda had KBR-run dining facilities. FFTs for the 5–20 Infantry Battalion at FOB Regulars, the 2–3 Infantry Battalion at FOB Freedom, and the 1–14 Cavalry Squadron at FOB Fulda worked in the dining facilities as quality assurance and control personnel.

Rations were pushed daily from FOB Marez to FOB Patriot to support the remainder of the 2–3 Infantry Battalion for their dinner meals. FOB Patriot used the same ration cycle as the 1–23 Infantry Battalion to reduce the number of daily ration convoys and minimize the FFTs' exposure to enemy contact.

1–14 Cavalry Squadron FFT Operations

The 1–14 Cavalry Squadron's FFT was the most spread out FFT, operating five locations simultaneously. The remote locations operated by the 1–14 Cavalry Squadron in the Tal Afar area included the brigade retransmission (RETRANS) site on top of Sinjar Mountain and Charlie Rock Base within the city. Initially, rations were delivered every other day, but, as headcounts stabilized and ration inventories increased, ration pushes were required only once every 7 days.

The Sinjar RETRANS dining facility consisted of one KCLFF–E, with 2 operators feeding 12 personnel in a makeshift dining facility. The team balanced their time between preparing meals and assisting with guard duty requirements. Although FFT personnel typically do not pull guard duty, the small number of personnel at Sinjar required every soldier at the site to help.

At Fort Stark, two personnel provided meals in a makeshift dining facility consisting of one CK and the FFT's "reefer" (refrigerated van). They fed 60 to 80 soldiers of a cavalry troop daily. The CK was used because no suitable facility was available for setting up a KCLFF–E.

During operations at Ar Rabi'ah, which is located on the Syrian border, two FFT operators fed a troop (-) element using one KCLFF–E. Initially, soldiers ate in their sleeping areas; however, this area underwent

considerable renovation and eventually received its own dining facility.

Company C, 5–20 Infantry Battalion, operated a base within the city limits of Tal Afar. Two FFT personnel fed the troops there using one KCLFF–E and a civilian-contracted freezer unit.

The dining facility at Aggie College, located south of Mosul, included a CK, a reefer, and a KCLFF–E and was operated by four FFT personnel who served 60 soldiers daily. The Aggie College facility was run by the 5–20 Infantry Battalion's FFT initially and later by a combination of personnel from the 2–3 Infantry Battalion, the 1–37 Field Artillery Battalion, and the 296th BSB. Similar to Ar Rabi'ah, this site underwent considerable renovation and improvement throughout the duration of 3–2 Stryker Brigade Combat Team's time in Mosul.

Lessons Learned

The lessons learned during the 296th BSB's deployment to Iraq include the following—

• Equipment (tables, chairs, and light sets) are required for each dining facility. Before deploying, the FFP must plan to provide this equipment for each supported battalion. Since the number of dining facilities is based on the number of operational sites that the unit will operate, this figure may change. However, it is important to have a basic plan.

• The BSB HHC should plan for up-armoring of FFT equipment. This can be done either by acquiring the materials and pushing them to the remote FFTs or by ensuring that the supported battalions' HHCs account for the FFT equipment in their vehicle-hardening figures. The methods used should be determined early in the operation to avoid confusion and duplication of effort.

• The BSB HHC must be prepared to cross-level FFT personnel to provide more food service specialists than the supported unit is authorized when needed.

• Careful, detailed coordination with the BSB Support Operations (SPO) Section is a must. The HHC commander will need the SPO's assistance with enforcing certain personnel and equipment redistributions within the supported battalions.

• The BSB HHC commander should have a close working relationship with each supported battalion's HHC in order to maintain awareness of the status of equipment and personnel. The HHCs provide invaluable assistance in hardening vehicles and providing convoys to the remote locations.

Supporting a large number of troop-feeding locations in Iraq appeared to be a daunting task at first. It was only through the creativity of each FFT NCOIC and careful planning by the FFP leader that the company was able to succeed in its mission. **ALOG**

Captain Michael K. Pavek is the Commander of Headquarters and Headquarters Company, 296th Brigade Support Battalion, 3–2 Stryker Brigade Combat Team, at Fort Lewis, Washington. He has a bachelor's degree in international business from St. John's University in Minnesota.

Soldiers of the 1–23 Infantry Battalion relax in their dining facility.

SBCT Up-Armor Evolution

BY CAPTAIN DANIEL P. FRESH

Support units in Iraq have found that they need to provide added protection to their vehicles. The first SBCT's support battalion began this process before it deployed and continued to modify its vehicles' up-armor design to counter threats to their troops throughout its time in Iraq.

Before we deployed from Fort Lewis, Washington, to Operation Iraqi Freedom in November 2003, the 296th Brigade Support Battalion (BSB) of the 3d Brigade, 2d Infantry Division—the first Stryker Brigade Combat Team (SBCT)—learned about improvised explosive devices (IEDs) and some of the hostile forces tactics, techniques, and procedures (TTP) that we might encounter. We started looking for ways to protect our BSB soldiers from IEDs on the roads of Iraq, concentrating on hardening vehicles with sandbags after we arrived in Kuwait.

This up-armored HMMWV resembles a Mad Max vehicle, thus the nickname "Mad Attakai" for the name of the welder who designed the armor.

Mad Attakai

At Forward Operating Base (FOB) Pacesetter near Samarra, Iraq, we learned from other units the basic requirements for IED protection and began experimenting with different up-armor configurations. The brigade S–4 procured about 1,000 sheets of steel for configuring armor for two- and four-door high-mobility, multipurpose, wheeled vehicles (HMMWVs) to protect the soldiers from drive-by shootings and IEDs. With the sandbags that we installed before departing Camp Udairi, Kuwait, we felt the HMMWVs had sufficient protection.

At that time, we only had one welder, Specialist Lyle Attakai, who worked day and night cutting and fitting the design that would come to be known as the "Mad Attakai" up-armor special because it resembled one of the heavily armored vehicles in the Mad Max movie series. The Mad Attakai armor designs became in demand throughout the brigade.

The only shortcoming of these designs was that they did not provide protection from the weather. In the desert, we did not expect rain to be a factor. However, we were wrong. We arrived in country at the beginning of the winter months, and it was cold and rainy at times as we conducted operations near Samarra and in Mosul.

We spent about 45 days at FOB Pacesetter before moving north to Mosul to replace the 101st Airborne Division (Air Assault). During those 45 days, our welder up-armored as many of the unit's vehicles as he could. We took all unused steel with us to Mosul so he could complete the up-armoring. Not all vehicles were up-armored before leaving FOB Pacesetter, but the vehicles without armor used sandbags for protection as the brigade moved north.

Kevlar blankets, which also can be used to help provide protection, were slow to arrive during the initial stages of our deployment. It took from 30 to 40 days to receive supplies ordered from the continental United States.

When the 101st Airborne Division redeployed to Kuwait, all of its up-armor materials were returned to us in Mosul. We also received TARDEC kits (up-armor kits developed by the Tank and Automotive Research, Development, and Engineering Center) for

HEMMT armor protects drivers of large transport vehicles.

two- or four-door HMMWVs, and we continued to modify our original "Mad Attakai" design. As the hostile forces changed or modified their TTPs, we revised our up-armor requirements.

Expanded Requirements

Once we arrived in Mosul, the 296th BSB's Forward Maintenance Company's requirement to up-armor HMMWVs broadened to include up-armoring heavy, expanded mobility tactical trucks (HEMMTs) and medium tactical vehicles (MTVs). Local nationals helped our small welding crew with the cutting, fitting, and mounting of all the up-armor on the vehicles. This significantly increased our production.

The HEMMT load-handling systems and wreckers were our primary concern since these were the 296th BSB's primary vehicles for resupplying, recovering, and supporting the SBCT. HEMMT drivers and passengers did not think they had enough protection with the original up-armor design, so our welders worked to improve the design used to armor these vehicles. Visible external armor provided double protection—by hardening the vehicle and by discouraging attack by enemies who saw that the vehicle was armored.

Hostile Forces' TTP

Some of the hostile forces' TTPs included the use of ground-level IEDs, height-elevated IEDs, and daisy-chained mortars. The IEDs often are detonated remotely and accompanied by small arms attacks. Protection from these devices required a modification of the original "Mad Attakai" design. The new design provided a more comprehensive defense against IEDs or small arms attacks.

Next, we looked at a way to protect the gunner in the back of our gun-truck HMMWVs. Once we received pedestal mounts that would allow us to position M249 machineguns on swivels, our welders designed a template for steel up-armor to be mounted around the rear area of our HMMWVs. In addition to protecting the gunners, this armor helped prevent the pedestal gunners from falling out of the vehicle.

Up-armoring the 296th BSB's vehicles in Iraq was a learning process. It required flexibility and creativity. We learned that all vehicles on the road should have visible up-armor to deter attack and that passengers must be alert and focused on their surroundings. **ALOG**

Captain Daniel P. Fresh is the Commander of the Forward Maintenance Company, 296th Brigade Support Battalion, 3d Brigade, 2d Infantry Division, at Fort Lewis, Washington. He has a B.A. degree in history from Southeastern Louisiana University and is a graduate of the Ordnance Officer Basic Course, the Combined Logistics Captains Career Course, and the combined Arms and Services Staff School.

Armor on gun trucks protects the gunner in the back of the truck.

'The Surge'

Between February and April 2004, an Army-Navy task force, Task Force 385, supervised the movement of equipment through the port of Ash Shuaiba, Kuwait, during the transition from Operation Iraqi Freedom I to Operation Iraqi Freedom II. This transition, called "the surge," generated the largest, most rapid movement of military equipment in modern history. The Army component of the task force was the 385th Transportation Battalion, an Army Reserve unit from Tacoma, Washington. The Navy component was Naval Expeditionary Logistics Support Force (NAVELSF) Forward Alpha, which was made up of Navy Reservists from Arizona, California, Florida, Nevada, Ohio, Texas, and West Virginia.

Task Force 385 was the first Army-Navy task force to be formed at the tactical level. The organizations that were involved had to quickly overcome differences in military culture and language in order to work together. One of the challenges faced by the task force was the fact that the Navy personnel were working with Army equipment. To address this situation, NAVELSF personnel trained on Army equipment at Fort Eustis, Virginia, before deploying to Kuwait.

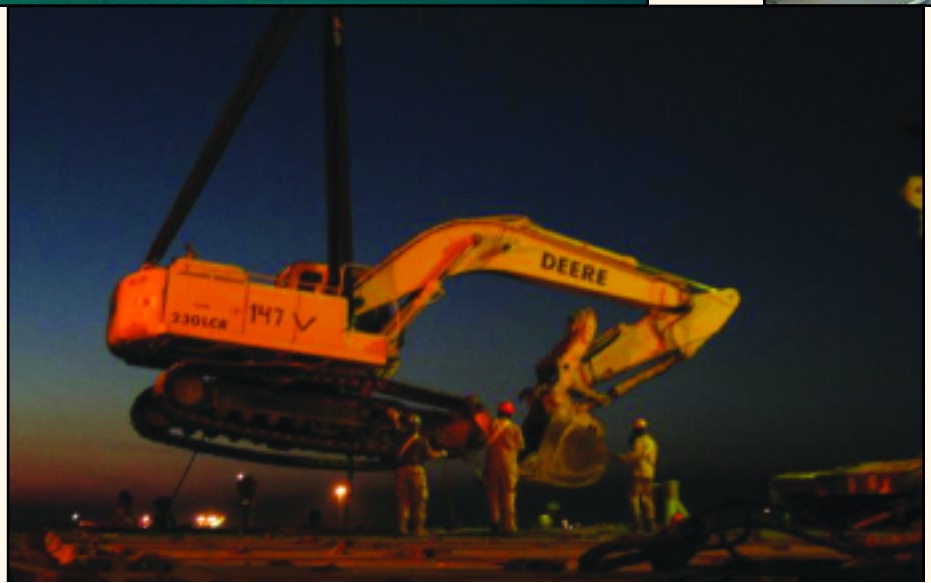
Task force leaders, soldiers, and sailors often worked 12- to 16-hour days to marshal, stage, and load vessels. At the peak of the surge, four large, medium-speed, roll-on-roll-off vessels and one fast sealift ship were berthed at the same time. This was the first time in history that so many vessels of those types were in the same port at the same time.

During the surge, Task Force 385 managed the movement of 211,000 pieces of equipment through the port. The task force loaded 37 of the 95 vessels that berthed there. By the end of the surge, the task force had moved 8 of 10 Army divisions, 4 coalition brigades, and 1 Marine expeditionary force.

Individual initiative and commitment were the keys to Task Force 385's success. **ALOG**

The Army Logistician staff thanks First Lieutenant Brian H. Young and Captain Elizabeth D'Ambrosia of the 385th Transportation Battalion in Tacoma, Washington, for providing the information and photos for this article.

At top left, sailors from NAVELSF Forward Port Alpha prepare a container to be lifted onto a ship. At top right, contract employees on an M88 recovery vehicle exit a large, medium speed, roll-on-roll-off vessel after towing not-mission-capable equipment aboard. The photo at center left shows five vessels berthed at the port of Ash Shuaiba during the height of the Operation Iraqi Freedom II surge.



Vehicles are secured on the ramp of a Cape class vessel for shipment (above). At bottom left, a soldier from the 251st Cargo Transfer Company rinses a coalition vehicle in preparation for redeployment. At bottom right, Task Force 385 stevedores guide a load onto the weather deck of a vessel at night.

An 'Opportune Lift' Showcases Joint Logistics Capabilities

BY JONATHAN D. MARCUS

Between 1 and 16 March 2004, the Army and the Marine Corps executed a joint ammunition shipping operation aboard the Military Sealift Command's large, medium-speed, roll-on-roll-off ship *USNS Soderman*. This example of joint cooperation came about after the Army Field Support Command (AFSC) at Rock Island, Illinois, agreed to assist the Marine Corps in an "opportune lift" of ammunition that the Marines wanted moved to Europe. An "opportune lift" is defined by the Department of Defense as that portion of lift capability available for use after planned requirements have been met. At the time, AFSC was in the process of preparing to transport equipment and ammunition for Combat Equipment Group-Afloat (CEG–A), which is a subcommand of AFSC. After a series of conversations among personnel at several different commands, AFSC assisted the Marine Corps in transporting Marine ammunition to Italy aboard the *Soderman*.

This Army-Marine Corps interservice operation built on joint activities that AFSC has conducted in the past several years, particularly during Operation Enduring Freedom. It allowed AFSC to save the Government money while expediting the shipment of ammunition to the Marine Corps in Europe.

AFSC pre-positions ships throughout the world to transport equipment and ammunition to warfighters in the field as part of the Army Pre-positioned Stocks (APS) Program. CEG–A manages operations connected with APS Afloat. The Soderman is assigned to Theater Flotilla Group III, one of AFSC's groups of pre-positioned vessels.

Ammunition to Europe

On 1 and 2 March, the *Soderman* was uploaded at Charleston Naval Weapons Station in South Carolina with 17 shipping containers of Marine Corps ammunition. These containers held approximately 6,000 155-millimeter artillery projectiles and were stored on the ship alongside Army ammunition. At the port, CEG–A personnel monitored the upload of the containers onto the *Soderman*.

The *Soderman* departed Charleston Naval Weapons Station on 3 March and arrived at Talamone, Italy, on 16 March. A contract group of Italian longshoremen offloaded the ship over 2 days. The ammunition then was taken by schooner through the Navacelli Canal to Camp Darby, Italy, for temporary storage with additional ammunition assets coming from elsewhere in Europe. The Marine Corps ammunition and the other stocks eventually will become part of the War Reserve Stocks for Allies program and will be shipped to another host nation. After the *Soderman* was downloaded and emptied of ammunition, it continued on its mission to upload equipment at Combat Equipment Battalion-Livorno in Italy.

Joint Service Coordination

The mission's success depended in large part on the expertise and collaborative efforts of individuals who knew how to work within both the Army and Marine Corps logistics systems. Because the mission was outside the normal logistics chain, it required communication and coordination among individuals associated with Army war reserves at AFSC, the Joint Munitions Command, CEG–A, the Army Materiel Command (AMC), and the Marine Corps.

Dave Lakeman, a quality assurance specialist (ammunition surveillance) with AFSC, observed—

> How did the Marine Corps know how to coordinate the activities from individuals at all these organizations, much less know the ship was coming? They didn't. It was individuals who were working war reserves that knew the Marine Corps needed these assets. They used their initiative and said, "Hey, we have an idea. We have a ship coming this way, so let's see if we can expedite the process and see if it is feasible."

The director of ammunition operations at Combat Equipment Battalion-Livorno contacted an ammunition officer at Headquarters, U.S. Marine Corps Forces, Europe, who gained approval for the operation from Marine Corps leaders and War Reserve Stocks for Allies managers. Approval also was obtained from Combat Equipment Group-Europe and Combat Equipment Battalion-Livorno. The Marine ammunition officer also communicated with

USNS Soderman, a ship assigned to the Army Field Support Command's Theater Flotilla Group III, rests at dock at Charleston Naval Weapon Station before it is uploaded with ammunition and cargo.

a logistics management specialist at AMC, who coordinated with the AFSC headquarters to work out the details of the actual shipping.

Under the usual procedures, the Marine Corps ammunition would have been placed on a regular list of items that needed to be shipped to Europe. The Military Sealift Command then would have determined which ships it had available during the requested timeframe to move the ammunition from the United States to Europe. The Military Sealift Command generally has rotating shipments from the United States to Europe designated for certain times of the year. It consolidates ammunition for shipment and distributes it from a designated location in Europe. Executing a joint operation with AFSC produced a huge cost savings for the Marine Corps.

A willingness to assist another service was important to the mission's success. A precedent for the *Soderman* operation occurred several years ago, when the Marine Corps assisted AFSC in moving some ammunition out of Norway. The Marine Corps had a ship coming into Norway to take Marine assets out. They consented to take along Army assets that AFSC needed to transport from Norway. The *Soderman* operation thus was another good example of one service helping out another.

Significant Cost Savings

The *Soderman* joint shipping operation saved the Marine Corps approximately $1.2 million. The Marine Corps also saved about $500,000 in handling and storage fees because the Army already had requisitioned and paid for the ship.

The Marines also will benefit from another cost saving when their ammunition is shipped to its final destination. Just as the opportune lift from the United States resulted in transportation cost savings, attaching the Marine Corps ammunition to the ammunition shipment going from Italy to its final destination will produce a second cost saving.

Much effort is devoted to consolidating cargo shipments when possible. AFSC and AMC personnel contact transportation personnel at the Military Surface Deployment and Distribution Command at Fort Eustis, Virginia, who then provide information to the Military Sealift Command on the shipment. AFSC and AMC ask the two transportation commands if another shipper already is scheduled to transport a shipment at the same time they want to move assets.

Moving ammunition presents special challenges. According to Paul Gebhardtsbauer, an AMC logistics management specialist—

For general cargo, the bill for shipping is split and you pay for the space used. But ammunition presents a hazard not found in most other commodities. When ammunition is shipped, it is always shipped from places where the risk that's presented is minimum to those people involved in the operation. The ship can't go and dock anywhere except another port that is currently licensed to accept the munitions.

Logistics Transformation

The *Soderman* operation was an example of successful joint service coordination and cooperation. It also provided a snapshot of the current state of joint global logistics support within AFSC and throughout the Army and the Department of Defense. The process involved in bringing together all of the elements to make this operation successful was complex and somewhat fortuitous.

The future path in military logistics support has been described in recent Army Transformation documents and joint doctrine. These sources include Joint Vision 2020; the 2003 Army Transformation Roadmap; Joint Publication 4–0, Logistics; and leading reports in commercial publications. They describe the evolution of many new ideas in logistics, including Focused Logistics, a global logistics command, the Global Combat Support System, and information fusion that will link Defense logisticians throughout the world to a joint logistics common operating picture.

The ability to "focus" logistics packages and anticipate needs will lead to a more methodical and precise delivery of equipment, materials, and ammunition to warfighters in the field and will prove vital in supporting a campaign-quality Army with a joint and expeditionary mindset. Patrick Monahan, a strategic planning officer at AFSC, notes, "Supporting the joint and expeditionary mindset requires a change of perspective—anticipating the foxhole requirements, satisfying them and not trying to make the industrial base make the foxhole accommodate us. We're trying to satisfy all their requirements by changing here."

Achieving a joint logistics common operating picture depends on information fusion—connecting logisticians to each other in support of the regional combatant commanders. When a joint common operating picture allows the global support structure to be synchronized with the regional combatant commanders, operations like the *Soderman* mission will be easier to identify and anticipate. A network enterprise with collaborative information systems will make such a coordination effort more automated and more visible. Logisticians will be able to see, anticipate, leverage, and synchronize information and make decisions accordingly. As logistics connectivity becomes routine, operations like the *Soderman* operation will become more methodical and less the result of chance happenings.

A truck carrying ammunition is driven onto the* Soderman *during the upload of ammunition at Charleston Naval Weapon Station.

Currently, logistics modernization is linking many systems on the distribution side, and the Joint Forces Command is putting collaborative information in databases for joint services. As Deborah Newman, a strategic planning officer at AFSC, describes it—

> It is not just a matter of moving around blocks on an organizational structure. It is taking systems that exist today and taking the seams out of those systems. And it's putting available information into collaborative information systems that provide the tools that you need to have the visibility all the way from factory to foxhole to see things, anticipate things, do the necessary coordination, and in a more automated manner than what we're doing today. But the types of things that we have accomplished with the *Soderman* operation are going to be done under a global logistics command. You're still going to have people, and you're still going to have coordination.

While Army logistics is in the midst of rapid transformation, AFSC continues to provide the best possible Department of Defense and interagency support.

ALOG

Jonathan D. Marcus is a Department of the Army public affairs intern with the Army Field Support Command at Rock Island Arsenal, Illinois. He previously served as an Army public affairs noncommissioned officer with the 1st Cavalry Division at Fort Hood, Texas, and the 34th Support Group/Area II Public Affairs Office in South Korea. He holds a B.A. degree in justice from American University and a J.D. from Vermont Law School.

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Transforming Joint Logistics Information Management

BY LIEUTENANT COLONEL JAMES C. BATES, USA (RET.)

Changes underway in the Department of Defense are saving billions of dollars while transforming the way the Government and the commercial sector exchange logistics-related information.

Few mid- and high-grade military or civilian logisticians spend time loading or unloading trucks, operating materials-handling equipment, or physically handling supplies these days. Instead, they focus most of their efforts on managing information pertaining to supplies. With this in mind, think of all the time logisticians have spent over the years looking up codes, determining addresses, handwriting or keypunching data, or supervising those who perform these tasks. Throughout the Department of Defense (DOD), an enormous amount of time is spent accomplishing these information management functions and correcting human errors. Fortunately, real transformational change is underway that is reducing this time-consuming burden.

Although their efforts are unheralded, DOD and the commercial sector have initiated improvements to logistics data processing methods within the last few years that have saved billions of dollars. These improvements simultaneously have transformed the methods the Government and the commercial sector use to exchange business-related information. Just as automatic identification technologies (AITs), such as magnetic strips, optical memory cards, radio frequency identification tags, and linear and two-dimensional bar code devices, have transformed the transport of supplies and equipment, the use of standard data "transaction sets" has greatly improved efficiency in transferring, receiving, and processing logistics-related information. The DOD legacy information systems, many of which use unique computer applications and telecommunications protocols, are transitioning to systems that incorporate evolving commercial practices and standards. This is fostering enhanced interoperability among the services and among DOD, other Federal agencies, and the commercial sector on a worldwide scale.

Real transformational changes are underway to reduce further the time required to get needed parts into the hands of the warfighter. At right, a soldier in the 201st Battalion, 3d Brigade, 1st Infantry Division (Mechanized), in Vilseck, Germany, organizes parts destined for a supply support activity in Iraq.

Basics of DOD Information Processing

In the past, DOD's logistics information system was based on the use of the 80-column punch card that debuted in the early 1960s. Each card contained information about one transaction. Since only 80 characters could be placed on a card, almost all logistics-related information had to be coded. The first three characters—card columns 1, 2, and 3—formed the document identifier code (DIC). This code

DIC	TYPE OF TRANSACTION
A0A	Requisition for domestic shipment with NSN (national stock number) or NATO (North Atlantic Treaty Organization) stock number.
AC1	Cancellation by requisitioner.
AE1	Supply status to requisitioner.
AS1	Shipment status to requisitioner.
FTE	Customer report of available excess.
TK4	Intransit data prepared by shipping activities showing data on Government bill of lading shipments within the continental United States (CONUS) and overseas intratheater and retrograde shipments.
TK6	Intransit data prepared by the Air Mobility Command's (AMC's) air port of debarkation (APOD) showing the hour and day a shipment is received at an APOD and forwarded to the ultimate consignee.
TK7	Intransit data prepared by Headquarters AMC or the Military Sealift Command's (MSC's) Ocean Cargo Clearance Authority (OCCA) showing the hour and day each export shipment unit is received or lifted from CONUS by AMC or MSC. The OCCA entries include the date of overseas vessel discharge.

Examples of frequently used document identifier codes.

set the stage for the type of logistics information contained on the card or, in other words, the type of transaction. The DIC and many other aspects of the 80-column card format are still in use today. Just as there are myriad types of logistics transactions, there are over 1,000 different DICs to identify them. The chart above lists some DICs that are familiar to most tactical-level logisticians.

The DIC determines the types of information contained in the other 77 card column positions, so the DIC must be known before the codes used in the other columns can be chosen or interpreted. In addition to the DIC, two other codes are of special importance: the DOD activity address code (DODAAC) and the routing identifier code (RIC).

The six-character DODAAC codifies the name of the organization (or the activity) that is requisitioning an item, will receive the item, will receive the status of the item, or will pay for the item. Most organizations that have a DODAAC have three distinct addresses. These are called type address codes (TACs). TAC 1 identifies the mailing address of the activity, and TAC 2 identifies the ship-to address (also known as the freight address). Frequently, a unit's TAC 2 address is the supply support activity that supports the unit. TAC 3 identifies the billing address for the activity. The three TAC addresses for a given DODAAC are contained in what is known as the DOD Activity Address Directory (DODAAD). (See DOD 4000.25–8–M, Military Assistance Program Address Directory (MAPAD) System, for an explanation of the TAC codes.) Before deploying, a unit should contact its DODAAD central service point to ensure that its DODAAC is updated with its deployment address. After-action reports following conflicts repeatedly have shown that many units failed to receive supplies on time because their TAC 1 or TAC 2 addresses did not reflect their deployed locations.

The three-character RIC serves several purposes. It designates the source of supply, routes transaction messages to the appropriate activity's computer system, and identifies the shipper who will be transporting the item of supply. Many activities have both a DODAAC and a RIC. DOD 4000.25–1–S1, MILSTRIP [Military Standard Requisition and Issue Procedures] Routing Identifier and Distribution Codes, contains a comprehensive listing of RICs.

DICs, DODAACs, and RICs continue to be standard components of DOD logistics information systems, programs, and procedures. These information systems initially were called the Military Standard Logistics System (MILS). As information technology advanced, MILS transitioned to the Defense Logistics Standard System (DLSS), which is now in the process of transitioning to the Defense Logistics Management System (DLMS). These systems monitor the DODAAD, the MAPAD, the MILSTRIP, Military Standard Transaction Reporting and Accounting Procedures, the Military Standard Billing System, the Military Standard Contract Administration Procedures, the International Logistics Community System, and the DOD Logistics Data Element Standardization and Management Program.

DAASC

The Defense Automatic Addressing System (DAAS) is the name given to the key information-processing computers that support over 80 million DLSS and DLMS transactions per week. DAAS is managed by the Defense Automatic Addressing System Center (DAASC). The center oversees two operating locations that function 24 hours a day, 365 days a year. DAAS is the critical logistics information processing hub for the entire DOD. In effect, it is the gateway for all DOD-related logistics information. Each of the two sites provides backup support to the other. Almost all automated supply transactions and some transportation transactions make their way to one or both of the DAASC sites, where they are

edited and then routed to the correct activity. The vast majority of U.S. military supply requisitions, regardless of their originating locations, are routed through DAAS.

According to DOD 4140.1–R, DOD Supply Chain Materiel Management Regulation, Section C8.6.1.1.7, "The Defense Automatic Addressing System Center (DAASC) shall provide conversion services (DLMS to DLSS and DLSS to DLMS) until all DOD components have implemented approved commercial standards and business processes and these corporate conversion services are no longer needed." Further, Section C8.6.1.1.10 states, " . . . the DOD components shall use the corporate services the DLMSO [Defense Logistics Management Standards Office] and the DAASC provide for all logistics business system processing . . . ." Finally, Section C8.6.1.1.8. states—

> The DAASC is designated as the corporate community service provider for DLMS. In this capacity, the DAASC shall provide telecommunications support, archiving and storage, translation services, ASC [Accredited Standards Committee] X12/DLSS conversion processes, and other services to support DOD component supply chain management systems and DLMS implementation.

DAAS integrates logistics information and telecommunications methods into a single automated information computer system. It is a near real-time, transaction-oriented system with direct interfaces with both private and commercial communications networks. It is designed to receive, validate, process, and deliver all logistics transactions that are computer readable and authorized for transmission by the customer. The two DAASC sites have fully redundant connectivity to private and commercial communications networks to ensure that there is no single point of failure for mission critical processes.

Each time a commercial or military shipper delivers an item of supply, the transaction record is routed through DAAS. The advantages of using DAAS as an information hub are profound. DAAS provides the military services with a single entry point into the DOD logistics supply system. It simplifies communication by permitting customer units to batch different types of transactions into one message, even though these messages eventually will be routed to different locations. Whenever DAAS receives a message with multiple transactions, it breaks down the composite message into individual transactions and routes each transaction to the appropriate address.

DAAS also edits transactions to ensure that they contain the correct data elements, such as source-of-supply codes, project codes, DODAACs, and RICs, as prescribed by DOD and service or agency business rules. Whenever possible, DAAS adjusts, in real time, incorrect or outdated information to ensure that logistics transactions are forwarded to the appropriate activities. If necessary, DAAS sends a failed transaction back to the originator, along with a message describing the related error.

DAAS is designed to effectively use the communication services provided by the Defense Logistics Agency's Enterprise Telecommunications Network (ETN), the Internet, dedicated circuits, and direct-dial commercial networks. DAAS uses these services to receive and transmit logistics transactions and to provide a variety of logistics-related services to its worldwide customer base.

Besides receiving, editing, and transmitting logistics information for the customer to the intended activity, DAAS also makes mirror images of an average of 122 million transactions monthly and transmits them to interested stakeholders, such as the Army's Logistics Intelligence File (a subordinate function of the Logistics Integrated Data Base), DOD's Joint Total Asset Visibility (JTAV) system, the U.S. Transportation Command's Global Transportation Network, the Air Force Materiel Command's TRACKER system, and the Defense Finance and Accounting Service. With DAAS, logisticians can track the life cycle of a requisition through the Logistics Information Network and the Web Visual Logistics Information Processing System.

DAAS also serves as the DOD repository for logistics-related information, including DODAACs; military RICs; the Plain Language Address Directory, which is used to route military message traffic; transportation account codes, which are used by the Defense Transportation System; type address codes; distribution codes, which are used to identify requisition-monitoring activity; and DOD fund codes.

DAAS also serves as the authoritative source for end-to-end performance metrics associated with DOD logistics, including logistics response time and customer wait time reports. The DAAS repository has an archive of all files and transactions that it has processed since June 1994, which is a valuable information source for conducting logistics analyses.

The DAASC also collects transportation data. It receives over 250,000 motor-carrier shipment status transactions each week from the numerous commercial shipping companies that support DOD. It also maintains and administers the DOD Activity Address File, which contains the standard point location codes (SPLCs) published by the National Motor Freight Traffic Association. SPLCs are nine-digit numbers that identify the specific origin or destination location of freight. The Army's Military Surface Deployment and Distribution Command is required

to maintain a DODAAC-to-SPLC cross-reference file. In its role as the DOD information gatekeeper, DAASC obtains and reviews the critical data elements that ensure accuracy in the Defense Transportation Payment Program.

Another major benefit of DAASC is the fact that it facilitates network protocol interoperability. When users communicate with DAAS using their internal communications protocols, DAASC translates these protocols so they can be delivered to and received by the ultimate destinations. For example, if originators send extensible markup language data using the file transfer protocol, but the destination requires delivery using X12 and MQSeries-type protocols (messaging middleware from IBM), DAASC has the capability to overcome these differences.

EDI

DAAS is central to the DOD efforts to foster electronic data interchange (EDI). With the advent of the Internet and improvements in telecommunications, electronic commerce has increased exponentially. Business-to-business transactions and business-to-government transactions, which once were completed painstakingly in a handwritten or keypunched format, now are being processed by computers and passed between the interested parties over the Internet using EDI.

EDI is the computer-to-computer exchange of business data in standard formats. In EDI, information is organized according to a specified format agreed upon by two parties, thereby permitting both to conduct a computer-to-computer transaction that requires no human intervention or keypunching on either end. When EDI is used throughout a supply chain by all vendors, suppliers, and contractors, huge cost savings and efficiencies result. The focus of EDI is on business data that are structured for exchange among trading partners, including procurement, transportation, logistics, and financial data. EDI's standard format is application neutral, which allows data to be extracted and read into a variety of application systems for further analysis and reporting.

ASC X12 and UN/EDIFACT

To exploit fully the power of digitization, private businesses and governments throughout the world have established organizations that provide guidelines on standardizing the formats and procedures for exchanging logistics-related information. The American National Standards Institute (ANSI) is one such organization. In 1979, ANSI chartered the Accredited Standards Committee (ASC) X12 to develop uniform standards for EDI. On the global level, the United Nations Electronic Data Interchange for Administration, Commerce, and Transport (UN/EDIFACT) was established to serve a similar purpose.

Many of the standards promulgated by ASC X12 are incorporated by UN/EDIFACT; the latter adopts the international EDI standards that are designed to meet the needs of both the governments and private industries. As the key U.S. organization for advancing electronic data interchange, ASC X12 develops, maintains, and publishes the EDI standards for the United States. According to the ASC X12 Web site, www.x12.org/x12org/about/X12Strategy.cfm, "Hundreds of organizations representing . . . Fortune 500, small and mid-sized companies, industry associations, and government agencies participate in ASC X12. More than 300,000 companies worldwide use the X12 electronic data interchange standards in daily business transactions."

A clear distinction must be made between standardized formats and the means to transmit and receive them. The EDI standards and the telecommunication methods of transporting the standard data formats are two separate entities. Fortunately, the standard formats can be exchanged over any electronic messaging service. The X12 and UN/EDIFACT standards specify only the format and data content of e-business transactions. They do not define how users will establish the required communications links needed to exchange EDI data. Users may choose any EDI and communications software that support the use of the standards. One of the many advantages of DAAS is that it facilitates the use of a variety of telecommunication methods in both DOD and the commercial sector.

Today, EDI data are moving over many types of electronic messaging services, including the Internet, which makes it easy to implement EDI at minimal cost using many commercial off-the-shelf application tools. Data can be transmitted over the Internet to DAAS by DOD users and commercial providers.

Transaction Sets

Routine business documents that once were completed by hand, printed on paper, and stored in steel file cabinets now are captured electronically and processed automatically on computers in what are called transaction sets. ASC X12 has published over 300 different transaction sets that can be used to record a wide variety of electronic commerce transactions. Many of them are applicable to DOD. Each transaction set can be identified by a brief written description and a three-digit code. Here are a few examples—

104	Air Shipment Information.
109	Vessel Content Details.
309	Customs Manifest.

310 Freight Receipt and Invoice (Ocean).
850 Purchase Order.
869 Order Status Inquiry.
870 Order Status Report.

Transaction sets can be broken down into data segments that can be divided further into data elements. An ASC X12 data element dictionary specifies the name, description, type, and minimum and maximum lengths for each data element. Data elements contain such basic information as an item's price, product code, size, and color. ASC X12 transaction sets standardize e-commerce data and, at the same time, permit a wide range of telecommunications methods to transmit the standardized data.

Extensible Markup Language

One way to transmit ASC X12 transaction sets is through the use of extensible markup language (XML), a relatively new Web language that was developed specifically for electronic business. Structured data can be sent over the Internet and processed using a computer. This is a significant improvement over hypertext markup language (HTML), which can display text and images but cannot process them. XML allows data to be processed with software applications such as the Joint Operation Planning and Execution System, the Global Transportation Network, and JTAV.

XML is an evolving technology that is particularly well suited for Web-based, computer-interface applications that require some human entry of information. On the downside, XML is bandwidth intensive; therefore, transmitting ASC X12 transaction sets is generally better suited for computer-to-computer interfaces.

DAAS supports translation services among X12, XML, and MILS. While use of standards is preferred, the DAASC also supports user-defined files (UDF). For example, if data that originate as a MILS transaction are required to be in an X12 transaction format at the receiving destination, DAAS provides the required translation service.

Transition from DLSS to DLMS

The Defense Logistics Agency, the parent organization of DAASC, is in the process of upgrading its legacy automated information systems using a program it calls Business Systems Modernization (BSM). Commercial off-the-shelf software programs and private industry methods are key components of BSM. The transition of the DLSS to DLMS is part of this process. DLMS readily accepts and processes XML transactions, many of which make use of variable-length data elements. The constraints of the fixed-length, 80-column card formats will soon be overcome. DOD 4000.25–M, Defense Logistics Management System Manual, describes DLMS like this—

> The DLMS contains a broad base of business rules, to include uniform policies, procedures, time standards, transactions, and data management, designed to meet DOD's requirements for total logistics support. The DLMS is founded upon ANSI ASC X12 EDI and will be expanded to support emerging Electronic Business/Electronic Commerce (EB/EC) capabilities such as: data sharing, automated identification technology, object-oriented user interfaces, electronic malls, web-based technology, and electronic funds transfer, as appropriate . . . . It provides standard procedures and data formats to link the various component organizational elements of the Defense Logistics community, including inventory control points (ICPs), distribution depots, maintenance depots, transportation nodes, and end users in posts, camps, stations, and ships with deployed units. The DLMS not only addresses the different functional processes of logistics, but also provides standards for interchange of data across the military services, defense agencies, other Federal agencies, foreign national governments, international government organizations, and with nongovernment participants. As other EB or EC methods emerge, DLMS will incorporate these new capabilities into the Department's logistics business processes as appropriate.

The transformation of information processing methods continues to gather momentum. DOD is continually updating its procedures to shift from DOD-unique logistics data exchange standards to ASC X12 and UN/EDIFACT standards while incorporating the widely available Internet language of XML. The advantages of transforming logistics information exchange have been, and will continue to be, profound. **ALOG**

Lieutenant Colonel James C. Bates, USA (Ret.), works for Alion Science and Technology and serves as a sustainment planner for the U.S. Joint Forces Command, J–9 Transformation, Distributed Continuous Experimentation Environment, in Suffolk, Virginia. He is a Certified Professional Logistician and a graduate of the Army Command and General Staff College and holds an M.B.A. degree from the University of Hawaii. He can be contacted by email at James.Bates@je.jfcom.mil.

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The Brigade Combat Service Support Rehearsal

BY MAJOR DARREN S. HOLBROOK

The brigade combat service support (CSS) rehearsal is a vital part of every brigade mission. Without conducting a CSS rehearsal, the brigade cannot effectively link all of its CSS assets for the fight. According to Field Manual (FM) 6–0, Mission Command: Command and Control of Army Forces, "Rehearsals allow staff officers, subordinate commanders, and other leaders to practice executing the course of action (COA) the commander chose at the end of the military decisionmaking process (MDMP)."

Each of the five types of rehearsals—confirmation brief, back brief, combined arms rehearsal, support rehearsal, and battle drill or standing operating procedure rehearsal—achieves a different result and should be conducted at a specific time. The brigade CSS rehearsal—a support rehearsal—brings together all pertinent individuals and all units to discuss the upcoming brigade combat team (BCT) mission. The CSS rehearsal should ensure that the CSS units can support the operation order and accomplish all of their missions. It also should ensure that the CSS elements are synchronized with the overall operation.

The brigade executive officer must ensure that enough time is allotted for the brigade to conduct the CSS rehearsal (during daylight if possible). CSS rehearsal requirements include participants; a recorder to take notes; an agenda and script; and a rehearsal area, terrain board, or map.

For a rehearsal to be effective, it should follow a prescribed agenda that everyone knows and understands. An effective rehearsal includes—

- Roll call.
- Participant orientation to the terrain.
- Enemy situation brief.
- Friendly situation brief.
- Description of expected enemy advancement.
- Discussion of friendly unit actions.
- Review of notes made by the recorder.

An agenda for making this seven-step process an effective rehearsal is shown on the chart at right.

> A rehearsal is a session in which a staff or unit practices expected actions to improve performance during execution.
>
> —FM 6–0

The recorder's role is vital to an effective rehearsal. The recorder must capture all issues that arise during the CSS rehearsal. The rehearsal does not slow or stop unless an issue arises that is considered a "war stopper." If this happens, the participants must stop the rehearsal and resolve the issue before continuing the rehearsal.

The brigade CSS rehearsal is the final opportunity for subordinates to identify and resolve issues. It is critical that all subordinate units participate and come to the rehearsal prepared to discuss their units' actions and the location of CSS assets. **ALOG**

MAJOR DARREN S. HOLBROOK IS THE MANEUVER BRIGADE S–1 AND BRIGADE S–4 OBSERVER-CONTROLLER AT THE NATIONAL TRAINING CENTER AT FORT IRWIN, CALIFORNIA. HE HAS A BACHELOR'S DEGREE IN SOCIOLOGY FROM MOREHEAD STATE UNIVERSITY IN KENTUCKY AND A MASTER'S DEGREE IN COUNSELING FROM CARSON-NEWMAN COLLEGE IN TENNESSEE. HE IS A GRADUATE OF THE ARMOR OFFICER BASIC AND ADVANCED COURSES AND THE ARMY COMMAND AND GENERAL STAFF COLLEGE.

> For units to be effective and efficient in combat, rehearsals need to become habitual in training.
>
> —FM 6–0

CSS Rehearsal Agenda	
Roll Call	Brigade combat team (BCT) executive officer. BCT S–1. BCT S–2 or representative. BCT S–3 or representative. BCT S–4. BCT and battalion or task force (BN/TF) unit ministry teams. BCT and BN/TF command sergeants major. Forward support battalion (FSB) support operations officer. FSB commander. All company first sergeants, including first sergeants of separate companies. All headquarters and headquarters company commanders. All support platoon leaders. Medical company commander (level II care). Medical company ambulance platoon leader (level II care). Contractor point of contact on the battlefield. Recorder.
Participant Orientation to Terrain	The BCT S–3 or his designated representative provides details about the terrain on which the mission will be conducted.
Enemy Situation	The BCT S–2 or his designated representative briefs the enemy situation and the enemy course of action (COA) in order to depict the situation for combat service support (CSS) executors. The BCT S–2 also focuses on the enemy threat as it pertains to the CSS battlefield operating system.
Friendly Situation	The BCT S–3 or his designated representative briefs the friendly situation and the BCT's maneuver plan in order to depict the situation for CSS executors.
Advancement of the Enemy	The BCT S–2 or his designated representative advances the enemy according to the most likely COA at the point of the execution matrix that is being rehearsed. The depiction must tie enemy actions to specific terrain or to friendly unit actions.

Friendly Unit Actions	The BCT S–4 uses time-phased events to develop the rehearsal.
	Subordinate units provide—
	• Location of maneuver units.
	• Location and purpose of all known obstacles on the battlefield, including known enemy obstacles.
	• Planned locations of friendly FASCAM (family of scatterable mines).
	• Location of CSS assets (grids or command points).
	  • Forward aid station (FAS) and makeup.
	  • Main aid station (MAS) and makeup.
	  • Casualty collection points (CCPs).
	  • Nonstandard evacuation locations by type and quantity.
	  • Ambulance exchange points (AXPs) and makeup.
	  • Routes to and from CCP to FAS/MAS to AXP to level II care.
	  • Location and amount of classes IIIB (bulk petroleum) and V (ammunition) for emergency resupply in TF combat trains.
	  • Maintenance and recovery assets.
	  • Logistics release points.
	  • Radio nets for administration and logistics, casualty evacuation, and retransmission (RETRANS).
	  • Main supply routes (MSRs) and alternate supply routes (ASRs), to include "dirty" MSRs/ASRs.
	  • Casualty estimate for each phase and by type of casualty and if there are enough assets forward to handle the number of estimated casualties.
	• Security of combat health support and emergency resupply in TF combat trains.
	• Air evacuation priority and radio nets.
	• Patient decontamination kits in the FAS and MAS.
	• Number of passengers the BCT can decontaminate with available assets.
	• Quantity of water needed at the hasty decontamination points.
	• Refuel-on-the-move (ROM) point.
	• Enemy prisoner of war collection point.
	• Detainee collection point.
	• Displacement time and triggers for the AXPs, forward logistics element (FLE), and brigade support activity.
	• Which units have responsibility for evacuation of the shapers* in the BCT area of operations.
	  • RETRANS assets and location.
	  • Ground surveillance radar locations.
	  • Scouts locations.
	• Location of level II medical facility.
	• Resupply of class VIII (medical materiel) items.
	• Air evacuation routes and deconfliction of the air space.
	• Unmanned aerial vehicle flight routes.
	• Location and composition of: BCT FLE, class IIIB, recovery, medical, class V, maintenance, and water.

Conclusion	The recorder restates any changes, coordination, or clarification directed by the BCT executive officer or S–4 and discusses any issues that arose during the rehearsal that the BCT must answer.

*Shapers refers to units or teams that help the maneuver forces shape the fight.

Relearning Lessons Learned

BY COLONEL GLENN W. WALKER

When I arrived in the Iraqi theater at the end of June 2003, repair parts, uniforms, and many other items were still very scarce. Units were able to maintain readiness only because their mechanics kept equipment operational by what is called "controlled substitution."

As the focus of the action shifted to sustainment, it would be logical to assume that many of the logistics shortcomings experienced initially had been resolved. Not so. In fact, as the months wore on, the logistics situation worsened.

The inability to cope with a very high operating tempo (OPTEMPO) early in the war, and even for a while after the campaign to end Saddam Hussein's regime ended successfully, is understandable. But why did we still have the same problems months after major combat operations were declared over? For one, hostilities weren't over. However, it certainly wasn't the high rate of fuel consumption or the high burn rate of ammunition that caused the logistics problems to linger. So what were the causes?

The Business of Logistics

The first rule in good business—or, in this case, logistics—is "know your customer." Theater logisticians knew their forward unit customers' requirements for classes I (food), III (fuel), and V (ammunition) during intense operations. However, they did not know the requirements nearly as well as they might have with better logistics systems connectivity. In reality, the logisticians were able to push forward barely enough supplies to satisfy the forward units' immediate needs, and they were even less successful in supplying the requirements of their customers in the rear.

The ideal way to move all classes of supply forward quickly and efficiently is to have all supplies for a single customer loaded into a single package in the continental United States (CONUS). A theater distribution center (TDC) should be used only when serving small customers with low demand rates. When it is necessary to use a TDC—and it will be in a theater with many units and high OPTEMPO—"cross-docking" is the preferred method of operation because it is the most efficient.

Cross-docking refers to configuring input and output flows so all cargo arrives at one area in the TDC, travels through "on-the-move" sorting, and then is loaded in a separate area onto a delivery vehicle assigned to a specific customer's route. Delivery routes are designed to accommodate the smallest vehicle possible that will support the most customers at frequencies that best sustain those customers. The designers of the route also must consider the availability of vehicles in the fleet.

A good throughput operation requires the U.S. suppliers—the Defense Logistics Agency (DLA), Army Materiel Command (AMC), and commercial contractors—to know which units, over a short period of time, have enough demand to fill a container or triwall box. To know this, the supplier must know the customer's characteristics and its Department of Defense Activity Address Code (DODAAC). DLA manages a database on all of its customers and their ordering requirements history. If a theater manager prescribes package configuration rules for a customer, the DLA distribution centers will conform to those rules. Therefore, it is imperative that the DLA database be updated quickly and efficiently to govern the flow of supplies and material into the theater of operations in the right configuration, to the right place.

'Déjà Vu All Over Again'

The throughput problems I observed in Iraq were not new to me. In 1997, I served in Kaiserslautern, Germany, as the Army National Guard Assistant Chief of Staff in the 21st Theater Army Area Command (now the 21st Theater Support Command) and concurrently as the Chief of the Commander's Initiatives Group. The Kaiserslautern TDC, which was operated by the 37th Transportation Command, received approximately 100 full containers a week. The TDC was a cross-dock facility, which meant that containers—usually 40-foot metal containers packed with supplies—came into one side of the facility, were unloaded, and the supplies were transferred by load-handling equipment to the other side of the facility according to the DODAACs on the items.

During a review of all theater distribution processes in the 21st TAACOM, the Commander's Initiatives Group found that more than half of the supplies received weekly in the TDC were moved on to single customers. Logic dictated that, if the TDC could reconfigure multiple loads into one container for a single customer, those multiple loads could be configured for single customers at an earlier stage. Therefore, after careful review of customer demands over time, the group was able to effect an update of the DODAAC management database at the Defense Distribution Center (DDC) at New Cumberland, Pennsylvania.

The packing lines at DDC were instructed to place all items for an individual customer into a single container, and the port shipping contractor was told to ship that container directly to the customer. This change in procedures reduced the workload at the TDC by 50 percent and the average in-theater delivery time to high-use customers from 16 days to 8 days.

DODAAC Management

During the time I was in the Iraqi theater, there was little, if any, DODAAC management. Arriving containers were loaded with items for multiple DODAACs, and many of the tri-wall boxes had items for multiple customers. This placed a tremendous burden on the small and understrength supply units that operated the various supply support activities (SSAs) and the TDC at Camp Doha. Every container and many of the tri-wall boxes had to be opened and sorted before their contents could be forwarded to the requisitioning units. After a while, the frustration that resulted from the inability to keep pace with the volume caused them to ignore the ultimate customer and simply add the items to their customers' authorized stockage lists (ASLs) to meet myriad dues-out. Supply personnel assumed that items had been in transit so long that the original requester had satisfied the requirement in some other way.

Management of DODAACs must be put at the top of any list of corrective actions to be taken as a result of lessons learned in Operation Iraqi Freedom. Only through good management can throughput to customers be maximized and the weighty burden on support units in the theater, and ultimately the customers, be relieved. We must reexamine how DODAACs are managed. The automated processes for handling DODAACs at the AMC Logistics Support Activity (LOGSA) at Redstone Arsenal, Alabama, must be changed to enable on-the-fly, quick-response changes in "ship-to" addresses. As late as October 2003, the DODAAC file at LOGSA had home or mobilization station locations listed as the ship-to addresses for many units that were in theater.

Installations and theater commands can and should maintain control of the "bill-to" address, but the ship-to address is the ultimate responsibility of the unit commanders. A Web-based system (easily changed to a batch mode system if there is no Internet connectivity) that allows the commander to quickly change the ship-to address for his unit is critical to good throughput management. A unit's DODAAC should be as permanent as its unit identification code or derivative unit identification code.

In-Transit Visibility

During Operation Iraqi Freedom, containers arrived in theater with radio frequency identification (RFID) tags carefully mounted and full of data on what was inside the containers. However, no one was at the port to forward the containers to their correct destinations when they came off the commercial vessel, so all that labeling work was a wasted effort.

This issue isn't new; it is simply a continuing saga of a new idea with no sponsor. Adding technology without first implementing the right organizational and doctrinal changes only means that we know more quickly that we're in trouble—and we have no way to fix it. The Army has failed to institutionalize RFID technologies even though we have had those technologies for over 15 years. The Logistics Transformation Task Force, commissioned in May 2002 by Army Chief of Staff General Eric K. Shinseki and headed by Major General N. Ross Thompson III, commander of the Army Tank-automotive and Armaments Command, recognized this shortcoming and recommended that responsibility for standardizing RFID technologies be given to the movement control community. To date, nothing has happened to resolve this ownership issue.

The Army is planning the future logistics organizations that will deliver support to the warfighter during the first 30 days. Now is the time to embed the right structure in the resulting organizations to support in-transit visibility and provide the technology our units need to obtain information on the sustainment flow. When we are preparing for operations, distribution teams must deploy to critical distribution centers and ground, air, and sea ports to install readers in sufficient quantities and locations so logisticians can "see" in-transit assets that have RFID tags or barcode labels attached.

Joint policies, procedures, and regulations must be changed to require the correct labeling of all Department of Defense assets to support RFID tracking. Thus, when units and supplies move through the logistics nodes, the data will feed to the Global Transportation Network (GTN) database, where they can be accessed by those who need unit and asset visibility, regardless of their location. Once the data are in the GTN database, linking them to trains, trucks, planes, or ships is a data-linking process rather than a major input operation.

Our current systems already have pieces of this solution, but there still is no established method to ensure that data are updated at critical points while supplies are in transit. Doctrine that assigns responsibility for developing such a method to movement control elements would correct this deficiency.

A final thought: Soldiers often have simple solutions to some of these seemingly overwhelming challenges. We must harvest their ideas before they become stale. Progress in technology is often measured in micro steps forward, not in blinding leaps. Therefore, we must garner these advances, apply them where needed, and institutionalize the changes. It matters little who gets the credit—the bottom line is doing the best that we can for our soldiers. **ALOG**

Colonel Glenn W. Walker, ARNG AGR, serves as the G–4 for the Army National Guard in Arlington, Virginia. He has master's degrees in business administration from Moravian College in Pennsylvania and in national resources strategies from the National Defense University. He is a graduate of the Quartermaster Officer Basic and Advanced Courses, the Army Command and General Staff College, and the Industrial College of the Armed Forces.

Fostering Joint Logistics Interdependence

BY COLONEL CHRISTOPHER R. PAPARONE

There is a lot of discussion among logisticians about increasing logistics interdependencies among service components in the conduct of joint operations. As I took on my new assignment on the staff of the U.S. Joint Forces Command, I wanted to investigate the nature of the interdependence of organizational systems and report my findings to the logistics community.

Defining "Interdependence"

When we use the term "interdependence," we should recognize that we derive its meaning from "open systems" theory in the biological sciences. "Open systems" take inputs from the external environment, transform some of them, and send them back into the environment as outputs. James D. Thompson, an organization theorist, was one of the early pioneers in adapting this biological metaphor to describe intra- and interorganizational behavior. In his seminal 1967 book, *Organizations in Action*, Thompson describes three types of interdependence (listed here from the least to the most complicated)—

- ***Pooled interdependence***. In this type of interdependence, separate organizations, which perform adequately on their own, might fail if one or more of them fail when they all operate in a broad context. One organization's failure threatens all, but perhaps not all at once. The traditional military practice of relatively independent service- and national-based operational logistics structures is a good example of pooled interdependence. Joint operations can occur, but only with service-oriented logistics support.
- ***Sequential interdependence***. This type of interdependence is linear, like an assembly line—one unit in the sequence produces something necessary for the next unit and so on. Supply chain management is a perfect example, ensuring goods are produced and delivered from "factory to foxhole." For example, the Army Materiel Command and Defense Logistics Agency ensure that items are purchased, and a vendor ensures commercial delivery as far forward as possible, where users receive direct shipments or retail activities distribute the items further forward.
- ***Reciprocal interdependence***. Here, the output of one organization becomes the input for others and vice versa. Organizational boundaries become less distinguishable, and the combined performance of the organizations requires complex forms of coordination. This form of logistics support is rare for U.S. forces. One example is the establishment of regional medical centers (such as in Landstuhl, Germany), where more than one service combines with another to provide general and specialized diagnosis and treatment. Another is in joint force projection, where the U.S. Joint Forces Command resources and prepares forces for deployment and the U.S. Transportation Command delivers them according to the combatant commander's (COCOM's) priorities.

Thompson maintains that when units come together in collective configurations, they become a synthetic organization, usually with a relatively short lifespan (such as a temporary joint task force created for disaster relief or military operations), and often "emerge" in response to specific environmental conditions and as the situation at hand develops. Figuring out ahead of time exactly what type of interdependence will develop with synthetic organizations probably is not possible. The design of interdependencies, which depends on the uniqueness of each situation, evolves as circumstances change. However, organization design based on modular capabilities can reduce the uncertainty. This is why the Department of Defense is striving to foster modular characteristics in the current and future forces.

Ways of Coordination

The challenge for logistics force developers is to design more modular and capabilities-based organizations in anticipation of ad hoc interdependence. Synthesizing recurrent reorganization (or "adhocracies") must be a process flexible enough to adapt to rapid environmental changes in real time. Logisticians have an array of coordination tools at their disposal to organize continuously for various levels of interdependence. I want to discuss these in order from easiest to most difficult. Each type of coordination is associated with a level of interdependence.

The least difficult way to coordinate is very familiar to the military—using already established **standards** (laws, institutionalized doctrine, rules, habitual routines, processes, regulations, or standing operating procedures) that fix interdependent relationships among multiple units. This coordination is most often associated with pooled interdependence.

The second way to coordinate—one more often associated with sequential interdependence—is to develop unique **plans** to coordinate a series of decisions yet to be made. This form of coordination is in addition to established standards, but it is more appropriate in nonroutine situations, such as early in military operations when tasks change often. Plans dictate, for example, the Army's requirements to provide Army

support to other services. The Marines are particularly dependent on Army support to other services for sustained land operations and on the Navy for medical, chaplain, and construction support. All services are sequentially interdependent on the Air Force for strategic airlift, strategic reconnaissance, and strategic attack assets. The Air Force is sequentially interdependent on the Army for furnishing inland surface transportation, air base security, and construction support, seizing forward air bases (as was done recently in Iraq), and providing chemical, biological, and theater missile defense coverage.

The most complex process of coordination—and the one most often concurrent with reciprocal interdependent relationships—is **mutual adjustment**. The more uncertain and ambiguous the situation, the more likely logisticians will require reciprocal interdependence. A unit's impromptu reliance on other service capabilities likely will result in this form of coordination. This is because the unit must manage reciprocal support in real time as new information becomes available and may not have the luxury of calling service-specific capabilities when and where they are needed. As logistics information technologies advance and contemporary operational environments become more fluid, the logistician must become more capable in facilitating adjustments to operations in real time. Note that the term "facilitate" replaces "command and control" in cases of reciprocal interdependence. Traditional command and control routines that go up and down the chain are too slow to achieve effective reciprocal support relationships.

Conflicts From Interdependence

Different kinds of interorganizational conflicts (such as service rivalries) may arise with each type of logistics interdependence. In cases of joint operations with pooled logistics interdependence, conflicts may result over allocation of national resources. This was seen in World War II, when U.S. forces operating in the Pacific theater competed for resources with those in the European theater. Landing craft were in short supply; which theater had priority?

Organizations that operate in sequential interdependence rely on outputs from relatively independent organizations that have little or no incentive to respond to the demands of dependent organizations. For example, the Navy and Air Force establish sea and air lines of communication to overseas locations. It takes the existence of a national logistics authority (such as the U.S. Transportation Command) to ensure that service and COCOM transportation priorities are met.

Organizations immersed in reciprocal logistics interdependence can operate routinely without conflict (as in the regional medical center concept). However, in a more ad hoc organizational arrangement, the failure of one service organization to provide its fair share of logistics capabilities to the others will lead to discontent and reciprocal finger-pointing.

From a bureaucratic organizational perspective, why would the Navy want to move from sequential to reciprocal logistics interdependence with the Army when conducting combat operations? After all, Navy forces are semiautonomous, with their own sea-capable distribution system. Why should the Army expect the Navy to want anything more complicated than service-oriented, pooled, or, at most, sequential logistics interdependence? What support can the Army reciprocate to the Navy that the Marine Corps-Navy team cannot provide logistically on its own? This may be a key strategic question for Army force planners to answer as they consider how to provide transformational future joint logistics capabilities.

The relationship between efficiency and effectiveness when developing interdependence also is important. Inherent risks occur in moving swiftly toward vast reciprocal logistics interdependencies. The military might not want to rush toward business-like efficiencies in reciprocal relationships because doing so might endanger effectiveness. One of my colleagues, retired Colonel Michael Matheny, stated this succinctly—

> Joint interdependence is aimed at efficiency as well as effectiveness. It strikes, to a degree, at the redundancy we have always enjoyed in developing and applying military capability. Military redundancy is not always efficient, but can be effective, since in the peculiar environment of war, business models are not always best.

From the perspective of Defense transformation, reciprocal logistics interdependence in joint military operations will require that the services cultivate trust and reliability as critical values. Conventional service-oriented logistics, as required by U.S. Code Title 10, seems to undermine the prospects of organizing jointly to take advantages of true reciprocal interdependence. To leverage the efficiencies of reciprocal logistics interdependence, our legislators must consider changing the Title 10 restrictions that inhibit it. As the U.S. military moves increasingly toward purer joint operations, it must find new ways to educate and develop service and joint logisticians who can facilitate the nuanced intricacies of focused and mutually beneficial forms of interdependence.

Colonel Christopher R. Paparone is the Deputy Director of Logistics and Engineering at the U.S. Joint Forces Command. He received a B.A. degree from the University of South Florida; master's degrees from Florida Institute of Technology, the Naval War College, and the Army War College; and a Ph.D., from Pennsylvania State University. He can be contacted at christopher.paparone@us.army.mil.

The Logistics Convoy: A Combat Operation

BY CAPTAIN DANIEL T. ROSSI

By building their own gun trucks, the soldiers of the 548th Corps Support Battalion no longer had to depend on outside units for security.

Force protection is a basic tenet of Army operations; it is paramount to the success of every mission. The need for force protection is not specific to any one branch of the Army, yet the Army historically has directed most of its force protection efforts to traditional combat operations. However, to ensure mission success on today's battlefield, Army logisticians must be given the same level of protection as that provided to other Army units.

Current operations on a distributed, noncontiguous battlefield highlight the enemy's overwhelming trend to attack "soft" logistics nodes. Convoys, in particular, are the targets of choice because of their inherent inability to provide adequate force protection to deter and defend against asymmetrical threats. Logistics units often rely on outside augmentation from maneuver and military police (MP) sources to provide convoy security. This relationship strains the forces providing the security and sometimes hampers combat operations by committing security assets that are needed elsewhere and slowing down the throughput of supplies. Too often, a logistics convoy waits for hours at a location for its MP security escorts, only to learn later that the MPs have been redirected at the last minute to a "high-priority" mission or that they were waiting at a different location. The convoy then misses the start point time and is forced to make other security arrangements in order to accomplish its mission. This situation reflects the Army's unwillingness to view logistics functions as warfighting operations.

Although the Army continuously seeks to improve its fighting capabilities through after-action reviews and improved tactics, techniques, and procedures (TTP), it does not include convoy operations in those improvement efforts. To protect their soldiers and supplies, some commanders in Iraq have resurrected a tactic that proved effective in repelling enemy attacks during the Vietnam War—the construction of gun trucks. My firsthand experience with the 548th Corps Support Battalion, 10th Mountain Division (Light Infantry), from Fort Drum, New York, while supporting the 101st Airborne Division (Air Assault) in Operation Iraqi Freedom from May 2003 to March 2004 underscored the need for organic force protection assets, such as gun trucks, in logistics units.

'Yankee Ingenuity'

Logistics units conduct combat operations daily in the form of resupply, retrograde, and recovery convoys. The maneuver elements in these logistics convoy scenarios are the gun trucks. Using the ingenuity and abilities of the 548th Corps Support Battalion's soldiers and the experience of several Army National Guardsmen who served in Vietnam, we were able to construct twelve 5-ton gun trucks from materials we found, brought with us, or fabricated in country.

The most effective gun trucks were made by using Russian infantry fighting vehicle armor plates found in an Iraqi supply warehouse in Taji. The plates were welded to the sides of the 5-ton trucks to provide protection against small-arms fire and shrapnel from improvised explosive devices (IEDs). Crew-served weapon mounts were positioned in the beds of the trucks, and ring mounts were installed in the cabs to support the firepower needed to defend against and deter attacks.

On one gun truck, we welded armor plates into a box configuration and emplaced crew-served gun mounts onto each side, which provided 360-degree overlapping fields of fire. The armored box could be lifted by a 5-ton wrecker or a 10,000-pound forklift, so it could be moved from one vehicle to another in case the vehicle it was mounted on became not mission capable.

After the gun trucks were constructed, our battalion no longer depended on outside units for security. Of the eight companies assigned to the battalion, three were transportation companies. These companies, which convoyed daily, were able to provide their own security. Other gun trucks provided security for recovery and ad hoc missions. Since the gun trucks were organic to the logistics units, their operational effectiveness was unmatched by external security assets.

Welders assigned to the 548th Corps Support Battalion during Operation Iraqi Freedom create an armored "box" (above) for positioning in the back of a gun truck. Note the gun mounts on the armored box in the back of the vehicle (below).

Collateral Benefits

The gun truck crews lived and trained every day with the other soldiers in the convoys, which created a level of cohesiveness and familiarity that was helpful in developing unique TTPs to counter the numerous threats the convoys faced. Owning the gun trucks also allowed the convoy commanders to execute the convoys' duties more effectively. They no longer had to wait for a linkup with external security assets and undergo the laborious tasks of synchronizing communications, inspecting equipment, and conducting convoy briefings and battle drills. Having organic gun trucks permitted inspections, convoy briefs, and rehearsals to be conducted ahead of time, which allowed the convoy commanders enough time to conduct last-minute checks and make corrections to ensure safe operations. Having organic convoy security assets also gave the units significantly more freedom of movement since the gun trucks exceeded the minimum security requirements for convoys. Other support battalions soon recognized the increased effectiveness provided by organic security assets and asked to use our gun trucks for convoy security or as models for creating their own gun trucks.

Drawing from our experience in conducting daily convoy operations from Balad to Mosul, Taji, and Kuwait for 10 months, we developed effective convoy procedures and battle drills. We determined that the minimum effective convoy security configuration included two gun trucks, one positioned in front of the convoy and one in the rear. Each gun truck was fitted with two mounted crew-served weapons with 180-degree fields of fire. We found that, in addition to the gun trucks in front and at the end of the convoy, the most effective gun truck-to-convoy ratio was one gun truck for every eight vehicles. Maintaining this ratio during really large convoys was not practical because, to do so, we would have had to convert more lift assets to gun trucks, which would have further decreased the unit's ability to transport supplies.

Gun Truck 'Specs'

An effective gun truck must be a 2.5-ton or larger vehicle that can keep up with convoy movements. It must be hardened with armor plates to withstand small arms fire and have at least one mounted crew-served weapon (7.62 millimeters or larger). High-mobility, multipurpose, wheeled vehicle (HMMWV) gun trucks were widely used out of necessity because of the unavailability of large trucks that could be transformed into effective gun trucks.

HMMWV gun trucks worked well in HMMWV convoys and as command and control vehicles, but larger gun trucks had additional benefits. Armored 5-ton vehicles with mounted crew-served weapons discouraged

A gun truck is constructed by welding armor plates to the sides of a 5-ton truck. A ring-mounted MK19 40-millimeter machinegun is emplaced in front, and a .50-caliber machinegun is mounted in back.

An alternative to providing organic force protection assets to logistics units would be to establish secure lines of communication (LOCs) between joint operating areas (JOAs). Because the current and potential battlefields are noncontiguous, austere, and extremely large, this would be an enormous task. Securing the LOCs would require a dedicated force of a size that would be impractical.

would-be attackers. The size of the vehicles also offered the crew a better field of view and permitted them to move more freely in the truck beds. The added height of the 5-ton vehicles also afforded better security for crowd control and protection from looters and attackers attempting to reach into vehicles or throw grenades into the trucks. The larger gun trucks also were better able to withstand IED attacks because they had a higher ground clearance than the low-riding HMMWVs.

Since most of the gun trucks were constructed from vehicles organic to the transportation companies, the crews manning the gun trucks came from within those companies. The crews were predominately motor transport operators (military occupational specialty 88M), which made it easy to switch gun truck crews and vehicle operators when necessary.

Disadvantages of External Security

Failing to include gun trucks on the tables of organization and equipment (TOEs) of combat service support units has significant drawbacks. Without organic gun trucks, convoy security must be provided by external units, or unit assets must be converted into gun trucks, which decreases the unit's lift capability. Relying on external units for security could cause combat forces to be diverted to missions other than attacking the enemy.

Convoy battle drills must be well rehearsed so each soldier understands the actions he must take on enemy contact. External security assets do not habitually train with the convoys they are protecting. The resulting lack of cohesiveness creates a dangerous combat environment. To be effective in suppressing an enemy threat and preventing fratricide, soldiers must be so well rehearsed that they know automatically how they and their fellow soldiers will react.

The Army has a commitment to its soldiers to provide them the best protection and equipment available. While small arms protective inserts (SAPIs) and up-armored HMMWVs are critical for combat units, gun trucks are essential for convoys.

The enemy continues to develop TTPs for waging attacks that threaten the full spectrum of Army operations. Convoys are faced with evolving threats every day. Make no mistake about it: most convoy operations are combat operations, especially those that traverse nonsecure LOCs between JOAs. Logistics units are part of the greater Army, and they are integral to the success of maneuver force operations. Failure of any part of the Army jeopardizes the outcome of the whole operation.

Tolerating inadequately mitigated risks while protecting logistics convoys is a dangerous course of action. Adding organic gun trucks to the TOEs of logistics units would enable combat logisticians to provide an uninterrupted flow of crucial supplies to combat arms forces and help ensure continued success on the battlefield. **ALOG**

Captain Daniel T. Rossi is a combat developer in the Directorate of Combat Developments for Combat Service Support at the Army Combined Arms Support Command at Fort Lee, Virginia. He previously served in the 548th Corps Support Battalion, 10th Mountain Division (Light Infantry), which provided support to the 101st Airborne Division (Air Assault) during its deployment to Iraq. He has a B.S. degree in political science from the State University of New York College at Brockport and is a graduate of the Ordnance Officer Basic Course, the Combined Logistics Captains Career Course, and the Combined Arms and Services Staff School.

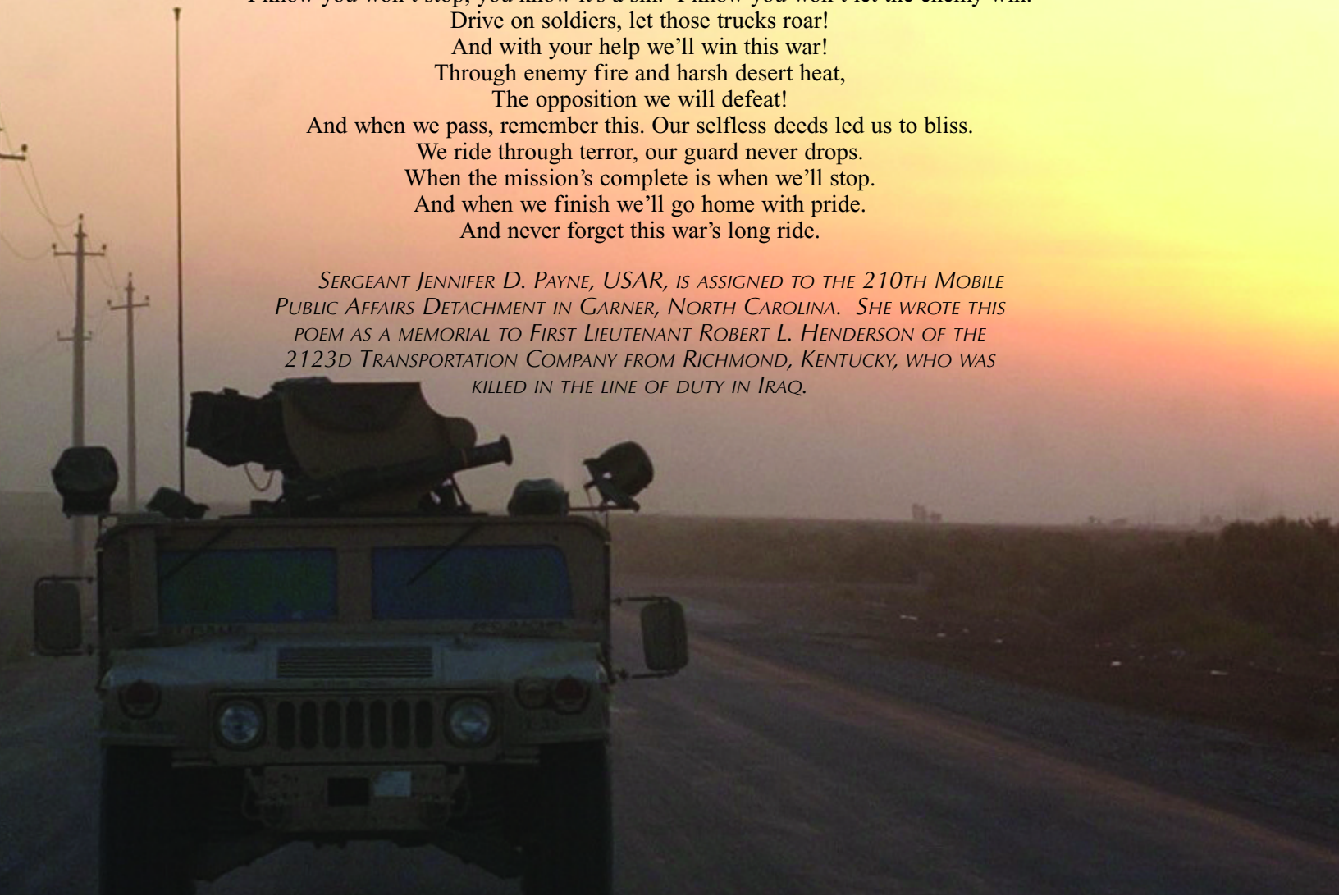
This poem, which was inspired by a lieutenant's philosophy of "drive on, no matter what," recognizes not only his dedication but also that of all of the drivers who risk their lives to ensure that the soldiers on the front line have the supplies they need.

The Driving Force

BY SERGEANT JENNIFER D. PAYNE, USAR

I'm a soldier prepared to ride. Mission ahead, rifle by my side.
Get in line and get in gear, leave behind all your fears.
Combat checked, secured my load. Now it's time I face the road.
And if this time I don't survive, don't you stop. Finish the drive.
For I know to stop would be a sin. Drive on, or the enemy will win.
I'm on the road, in the driver's seat. Eating dust and breathing heat.
Get in line and get in gear, leave behind all your fears.
No time to waste, I was told. The boys up north need this load.
And if it's my life the enemy should take, you better drive on, for the front line's sake.
For I know to stop would be a sin. Drive on, or the enemy will win.
I'm a soldier prepared to fight. Pedal to the floor, enemy in sight.
Get in line and get in gear, leave behind all your fears.
Combat ready, shoot to kill. Nothing can stop a soldier's will.
And if this time my life should cease, drive on so I may rest in peace.
For I know to stop would be a sin. Drive on, or the enemy will win.
I'm a road warrior, and a boundless rider. I'm a dedicated combat truck driver.
Get in line and get in gear, leave behind all your fears.
I know the danger of my task. I know my life may not last.
And if you should hear my final heart beat, drive on 'til the mission's complete.
I know you won't stop, you know it's a sin. I know you won't let the enemy win.
Drive on soldiers, let those trucks roar!
And with your help we'll win this war!
Through enemy fire and harsh desert heat,
The opposition we will defeat!
And when we pass, remember this. Our selfless deeds led us to bliss.
We ride through terror, our guard never drops.
When the mission's complete is when we'll stop.
And when we finish we'll go home with pride.
And never forget this war's long ride.

SERGEANT JENNIFER D. PAYNE, USAR, IS ASSIGNED TO THE 210TH MOBILE PUBLIC AFFAIRS DETACHMENT IN GARNER, NORTH CAROLINA. SHE WROTE THIS POEM AS A MEMORIAL TO FIRST LIEUTENANT ROBERT L. HENDERSON OF THE 2123D TRANSPORTATION COMPANY FROM RICHMOND, KENTUCKY, WHO WAS KILLED IN THE LINE OF DUTY IN IRAQ.



LOG NOTES

Base Closure Assistance

In his article, "Base Closure Planning," in the March-April 2004 issue, Lieutenant Colonel Leslie J. (Chip) Pierce does a good job of covering many details of military organizations in transition. It's obvious that he's learned many lessons in drawdown. I've had command of one unit during an inactivation and two installations during a base realignment and closure (BRAC) process. I have a somewhat different view on closures and realignments.

I agree with Chip's comment in the box on page 28, "If the Army is serious about taking care of its soldiers [and Department of the Army civilians] and their families, especially during periods of turbulence and change, it must ensure a smooth transition during base closure." I believe that in order to prove that the Army is serious about caring for the people involved, special teams must be trained to provide command and control of installations during a BRAC. These realignment and closure teams must have the ability to do what is necessary to close an installation regardless of what a parent organization may say. They also must have the latitude to coordinate actions with many organizations during a realignment.

Each team should include a BRAC commander, an environmental expert, a property expert, a security expert, and a top-notch personnel expert. This is all the expertise needed on a BRAC team. The team would be assigned to a targeted BRAC installation and would not leave until the closure or alignment was complete.

The merits of having teams that are trained to provide command and control during the turmoil are obvious. Usually, the first people to "jump ship" in the midst of closure are the most marketable employees. Normally, these employees are in critical positions and they understand how the personnel system works. Thus, they manage to take care of themselves and move out early, which can have a serious impact on the closure process as a whole.

The realignment and closure teams would be trained to arrive at the installation and immediately assume the duties of, or provide transition for, key personnel who are preoccupied with taking care of their families and themselves. (By law, BRAC is a 6-year process, although it can be executed in less time.) The teams would become intimately familiar with property, processes, and people fairly quickly and would know how to take care of Government personnel and their families during the process. The teams would be trained to address many other details, such as handling violence in the workplace, theft, and mission degradation, until closure or realignment.

With BRAC 05 possibly looming on the horizon, the Army must quickly develop a strategy for taking care of the people who have devoted their lives to supporting Army programs. Failure to take care of these people consistently and successfully will result in failure of the Army as an organization.

LTC Thomas S. Schorr, Jr.
Independence, Missouri

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WORLDWIDE LOGISTICS TRAINING WORKSHOP SCHEDULED

The Army Materiel Command Logistics Support Activity (LOGSA) 2005 Worldwide Logistics Training Workshop will be held 7 to 11 March 2005 at the Sparkman Complex at Redstone Arsenal, Alabama. The workshop will provide updates and workshops on current and emerging capabilities, policies, and procedures; hands-on computer training on the Army's logistics capabilities; problem-solving of logistics issues and concerns; help-desk support; professional development; and information-sharing. For more information, call (256) 313–6698 or send an email to marcia.byrnes@us.army.mil.

ALOG NEWS

(continued from page 1)

AM General, the company that builds the up-armored HMMWVs, operates around-the-clock to produce the vehicles as quickly as possible. In addition to increased armor protection, up-armored HMMWVs have ballistic-resistant glass and more rugged suspension systems that can handle the added weight of the armor. They also have air conditioners, which enable crews to operate with the windows up.

To reduce the vulnerability of deployed troops while the new vehicles are being manufactured, the Army has designed and produced its own add-on armor kits.

Army employees at Letterkenny Army Depot, Pennsylvania; Anniston Army Depot, Alabama; Red River Army Depot, Texas; Sierra Army Depot, California; Watervliet Arsenal, New York; Rock Island Arsenal, Illinois; and Crane Ammunition Activity, Indiana, are working three shifts a day to produce the Army-designed kits. So far, they have produced 8,800 add-on-armor kits, 8,700 of which have already been installed in vehicles in Iraq. O'Gara-Hess & Eisenhardt, the contractor chosen by the Army to produce add-on armor kits, has provided approximately 300 kits so far. The current requirement is for 13,872 kits.

Add-on armor kits have been installed on approximately 400 heavy, expanded-mobility tactical trucks, 35 palletized load system tactical trucks, and 450 trucks in the Army's family of medium tactical vehicles. In addition, 70 armored support vehicles are en route to Iraq, and the Army is in the process of buying the new armored support vehicle, which Motsek describes as a "mini Stryker," that is larger and has more armor protection than even the up-armored HMMWVs.

SDDC CREATES TRANSPORTATION TERMINAL GROUP IN KUWAIT

The Military Surface Deployment and Distribution Command (SDDC) stood up a new group headquarters in October at Camp Spearhead near the port of Ash Shuiaba, Kuwait—the 595th Transportation Terminal Group (Provisional). Until the establishment of this group, soldiers and civilians detailed from two existing SDDC groups provided SDDC's presence in the U.S. Central Command area of operations. First was the 598th Transportation Terminal Group at Rotterdam, The Netherlands. Then port and container management operations in Iraq, Kuwait, and other Persian Gulf countries were performed by an ad hoc unit known as SDDC Southwest Asia that was drawn largely from the 599th Transportation Terminal Group at Wheeler Army Airfield in Hawaii.

The 595th group headquarters was created to increase continuity with the warfighter, host nation authorities, and commercial carriers operating in the region and enhance SDDC responsibilities in end-to-end deployment and distribution support throughout the theater.

The 595th initially will be staffed by 40 soldiers and 40 civilians. Formation of the 595th gives SDDC four operating groups. The others are the 598th, the 599th, and the 597th Transportation Terminal Group at Sunny Point, North Carolina.

TRANSCOM WILL OVERSEE DOD SUPPLY CHAIN INFORMATION SYSTEMS

In a move designed to strengthen the U.S. Transportation Command's (TRANSCOM's) role as the Department of Defense (DOD) Distribution Process Owner, DOD has designated TRANSCOM as the portfolio manager for DOD supply-chain information technology systems.

DOD is using portfolio managers as a tool for transforming information technology systems while curbing costs. TRANSCOM management of supply-chain-related information technology systems will reinforce its responsibilities for improving the effectiveness and interoperability of distribution, sustainment, and force movement throughout DOD.

Commenting on the portfolio designation, the TRANSCOM commander, Air Force General John W. Handy, wrote, "[We] look forward to working with [DOD] and our national partners to take this necessary step. It will provide much-needed horizontal integration among the disparate distribution processes, systems, and data architectures and is critical to improving warfighter distribution."

A UH–60L Black Hawk helicopter equipped with the new IMD HUMS sits on display at the Pentagon in August.

DATA RECORDING WILL EXTEND LIFESPAN OF HELICOPTER COMPONENTS

New technology being installed on UH–60L Black Hawk helicopters records preventive maintenance information that will help extend the lifespan of helicopter components.

The Integrated Mechanical Diagnostic Device Health Usage Monitoring System (IMD HUMS) collects and processes data on the aircraft's critical mechanical systems and components. Use of IMD HUMS will base replacement of components on real measurements taken in combat rather than at the end of their projected lifespan, which will reduce significantly the cost of parts and in-theater maintenance manpower.

"This is the first system that recognizes regime profiles, which allows us to extend component lives," said Colonel Cory Mahanna, Project Manager for Utility Helicopters. "The system monitors in real time what the aircraft does."

Information on restrictions, inefficiencies, inspections, and service schedules of an aircraft is collected by the IMD HUMS and stored on a data card. The data can be downloaded onto a battalion's intranet so the status of all of its aircraft can be monitored by maintenance officers, pilots, commanders, and safety and standards officers. In remote locations that do not have intranet access, the IMD HUMS can be downloaded onto a standalone computer. To meet flight safety objectives, the system also directs signals and data to cockpit voice and flight data recorders.

The cost of IMD HUMS installation is $150,000 per helicopter. Congress has allocated $56 million through 2005 for the project.

NEW ENVIRONMENTAL STRATEGY IS BASED ON SUSTAINABILITY

The Army has revised its basic strategy for managing the environmental concerns that affect its missions. The new strategy—the first revision of fundamental Army thinking on the environment in 12 years—is called "The Army Strategy for the Environment: Sustain the Mission—Secure the Future" and was approved by the Secretary of the Army and the Chief of Staff of the Army in October.

The strategy is based on the principle of sustainability, which, in an Army context, means fostering a recognition of the interrelationships among the Army's missions, the natural environment in which the Army trains and operates, and the communities that are affected by Army activities. It "applies a community, regional, and ecosystem approach to managing natural resources on [Army] installations."

The strategy has six goals—

- Foster an ethic within the Army that moves beyond complying with environmental laws and regulations to incorporating sustainability "into all functional areas."
- Strengthen Army operations "by reducing [the Army's] environmental footprint through more sustainable practices." For example, zero emissions of heat, light, noise, and waste, while improving environmental quality, also will "reduce the [Army's] operational signature, environmental footprint, and logistical support tail."
- "Meet current and future training, testing, and other mission requirements by sustaining land, air, and water resources." As one example, the "Army will sustain its ranges . . . to maintain [their] resiliency . . . [and] protect the environment and . . . surrounding communities from impacts of training and testing."
- "Minimize impacts and total ownership costs of Army systems, materiel, facilities, and operations by integrating the principles and practices of sustainability."
- Enhance the health, safety, and well-being of soldiers, Army civilians and families, and installation neighbors.

• Adopt innovative technology to meet Army sustainability goals.

The complete text of the strategy is available at https://www.asaie.army.mil/Public/ESOH/doc/ArmyEnvStrategy.pdf.

NEW ACQUISITION STRATEGY TO SPEED CONNECTIVITY TO SOLDIERS

A revised acquisition strategy authorized in September by the Acting Under Secretary of Defense for Acquisition, Technology, and Logistics could mean that soldiers will have new tactical network technology much sooner than previously thought. General Dynamics C4 Systems and Lockheed Martin Mission Systems, which were working under separate contracts with the Army to develop parallel Warfighter Information Network-Tactical (WIN–T) capabilities, now have combined forces in order to establish a single baseline for the WIN–T program. WIN–T is expected to become the Army's premier integrated communications network, connecting soldiers through a high-speed, highly secure wireless voice, data, and video network.

According to Colonel Angel Colon, the WIN–T Project Manager, the combined effort will enable the Army to settle on network architecture within the next few months. "A single-baseline approach sets the conditions to incrementally provide capabilities to the Current Force," Colon said. "Soldiers will benefit from this combined effort because it opens the door for the latest in information technology to be fielded where real-time, quality information is most highly valued—with our deployed and combat-ready units."

The previous acquisition strategy called for the Army to select a single contractor for the new tactical network technology just before production. In the combined effort, General Dynamics will be the prime contractor and Lockheed Martin will provide complementary technical expertise and capabilities as a major subcontractor responsible for 50 percent of the effort.

Don Keller, project director for WIN–T, notes, "The single-baseline approach also provides a single focus for other interdependent developmental efforts, including the Future Combat Systems and Joint Tactical Radio Systems. The Army will . . . benefit in the final product by incorporating the strongest features of each contractor's design in a 'best-of-breed' approach."

DOD RELEASES DEFENSE ACQUISITION GUIDEBOOK

In October, the Acting Under Secretary of Defense for Acquisition, Technology, and Logistics approved the provisional release of the Defense Acquisition Guidebook. The new guidebook is designed to serve as a companion to Department of Defense (DOD) Directive 5000.1, The Defense Acquisition System, and DOD Instruction 5000.2, Operation of the Defense Acquisition System; these documents, which were released in May 2003, are the revised acquisition policy documents that established the policy framework for translating mission needs into stable, affordable, and well-managed programs. Release of the guidebook fulfills DOD's commitment to design a transformed acquisition system and supporting policy that foster efficiency, flexibility, creativity, and innovation.

The guidebook is an interactive, Web-based capability designed to provide the acquisition workforce and its industry partners with an online, instant reference to best business practices and supporting policies, statutes, and lessons learned. It complements DOD Directive 5000.1 and DOD Instruction 5000.2 by proposing how acquisition managers can implement the policies established in the documents.

The Defense Acquisition Guidebook is now available on the Internet at http://akss.dau.mil/DAG.

JFCOM'S JOINT NATIONAL TRAINING CAPABILITY MOVES FORWARD

The U.S. Joint Forces Command (JFCOM) has announced that the Joint National Training Capability (JNTC) has reached its initial operational capability following four successful training events last year.

The centerpiece of the Department of Defense's plan to transform joint training, the JNTC will create a networked collection of training sites and nodes that will meet the training needs of both combatant commanders and the armed services. It will offer a spectrum of training environments, including live (live forces using real equipment), virtual simulation (real people in simulators), and constructive simulation (computer simulations) training events.

The JNTC will provide training at four levels—

• Horizontal, which synchronizes training at the service-to-service level.

Beginning in 2007, the assault kitchen will provide a better way to feed company-sized military units in the field.

• Vertical, which coordinates training of a service branch with a higher component and a lower service branch.

• Integration, in which participants train in a joint context to improve interoperability.

• Functional, which provides a joint training environment for functional and complex warfighting.

Last year's four training events were the Western Range Complex Horizontal Training Event 04–1 in January; Combined Joint Task Force Exercise 04–2, an integration event in June that included forces from Canada, France, Germany, Great Britain, The Netherlands, Norway, and Peru; Determined Promise 04, a vertical event in August that involved the U.S. Northern Command, the Department of Homeland Security, and local fire and emergency response agencies; and Joint Readiness Training Center/Air Warrior II 04–09, another horizontal event in August that incorporated virtual and constructive simulation capabilities.

The JNTC is scheduled to achieve full operational capability by 2009.

ASSAULT KITCHEN OFFERS FASTER FIELD FEEDING

The assault kitchen (AK) developed by the Food Service Equipment Team at the Army Soldier Systems Center in Natick, Massachusetts, offers a way to provide hot meals quickly to forward-deployed units. Beginning in 2007, the Army will use the AK to feed company-sized units in the field instead of the current kitchen, company-level field feeding (KCLFF).

The AK consists of a high-mobility, multipurpose wheeled vehicle (HMMWV) and trailer packed with equipment that either eliminates, transfers, or replaces the separate KCLFF components with a mobile platform that holds all of its components. Because of the lengthy setup time involved, frontline troops often elect to take only certain components of the KCLFF when they deploy. Included in the AK are six insulated beverage containers, three pan carriers to keep food trays warm, five insulated food containers, a 5-gallon fuel can, a fire extinguisher, a utensil box, a tray-ration heater to prepare unitized group ration heat-and-serve tray packs or number 10 food-service cans, and a maintenance kit for the tray-ration heater.

The towed trailer carries eight water cans, an ice chest, three tables, cargo netting to hold tray-pack boxes, stock pots, a cradle for preparing hot beverages, and an awning to cover the serving area during bad weather.

The AK's tray-ration heater operates on common battlefield fuels and draws electricity generated from the HMMWV through a mounted power inverter. Its portable, stainless steel water tank heats up to 18 tray packs, 15 number 10 food service cans,

or a combination of the two in 30 to 45 minutes. Unlike the KCLFF's open-flame burners, which cannot be moved while in operation, the AK can offers a heat-on-the-move capability. Setup by two cooks takes as little as 10 minutes, and packing up is equally fast.

The Food Service Equipment Team plans to refine the system and complete additional testing during the next 2 years. Current plans call for the Army, the Marine Corps, and, potentially, the Air Force to combine their requirements for the AK and tray-ration heater into one economical production contract.

AIR SHIPMENTS NOW CONSOLIDATED BY DLA

The Defense Logistics Agency (DLA) collaborated with the Air Mobility Command last summer to improve their processes for packaging and transporting military cargo. All Department of Defense small packages and depot shipments originated and controlled by DLA now are sent directly to DLA consolidation and containerization points (CCPs) and prepared for shipment there. This marks a significant change in the way business is conducted.

In the past, many small packages from many sources would arrive at an aerial port, where they were held until they could be sorted, combined, and palletized. Shipments now are arriving at the aerial port ready for air shipment.

This change in procedure was conceived by General John W. Handy, Commander of the U.S. Transportation Command and the Air Mobility Command. General Handy's plan included moving the processing of shipments from the aerial port to DLA CCPs and having the CCPs load information about shipments into computer tracking systems before releasing them. Computer systems for tracking shipments are being integrated, with information entered at the CCPs. DLA also has completed its plan for processing direct vendor delivery shipments at the CCPs instead of at aerial ports.

Brigadier General Loren M. Reno, the Air Mobility Command Director of Logistics, described the change in procedures as significant process changes that increase the speed and predictability of warfighter sustainment support and improve visibility of support earlier in the pipeline.

The DLA Office of Operations Research and Resource Analysis is developing a tool to predict the number of pallets that will flow from a CCP to an aerial port over a 48- to 96-hour period. This capability will allow the aerial ports to schedule their workloads and could be used by the Tanker Airlift Control Center to forecast and schedule use of air transports.

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I certify that the statements made above by me are correct and complete:

Janice W. Heretick, 19 August 2004.

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